



REPORT ON TRAFFIC CONDITIONS

IN THE CITIES OF

JACKSON, BATTLE CREEK, KALAMAZOO & LANSING

FOR

MR. A. W. McLIMONT

BY

HOWARD R. STEWART, E. M.

JANUARY, 1911

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JACKSON, BATTLE CREEK, KALAMAZOO AND LANSING.

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Equations

From the memory of
Howard H. Brown & M.

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N O T E.

For a proper understanding of this report insofar as it relates to the cities of Battle Creek, Kalamazoo and Lansing, a careful reading of the section on Jackson is necessary.

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INTRODUCTION.

In commencing the investigation upon which the following report is based, it was realized that conditions unsatisfactory to the public or to the finances of the Michigan United Railway might prevail for one or more of the following reasons:-

1. An Excessive or an Insufficient Service.
2. A Poorly Arranged Service.
3. Want of Punctuality.
4. Discomfort of the Cars.
5. Miscellaneous Defects.

The observations made will be discussed under the above headings and in the order of their importance.

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METHOD OF INVESTIGATION.

Primarily the examination was one of observation, involving a study of conditions from the point of view of one of the public.

A considerable amount of travel upon the cars in all four cities having produced very definite impressions, an attempt was made to fortify these and to render them concrete by an analysis of the Company records, particularly of the Conductors' "Trip Sheets" which afforded indisputable evidence upon certain points, notably with regard to the crowding of the cars, to their punctuality in operation, and to the profitability of the individual trips.

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REGULARITY OF SERVICE.

It is probable that, of all the possible defects in the car service of a small city, irregularity of running is the most vital and far reaching in its effects upon the finances of an operating Company. Within certain limits, frequency of service is almost immaterial provided punctuality is adhered to. Being usually merely a matter of discipline, this defect is frequently the most cheaply remedied of all.

A strictly regular service is effective both in generating new traffic and in grasping the normal movements. With regard to the former point, persons, particularly ladies, who, upon seeing a car pass their doors, can feel confident that another will arrive in a certain definite number of minutes, will often venture forth in inclement weather, when the prospect of a probable wait in the cold or wet would serve to deter. With those who are obliged to travel, a tardy street car, in a city only two or three miles in diameter, almost invariably leads to a decision to walk the required distance.

Closely allied to this subject is that of the variable schedule, i. e., one in which the average

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speed of the cars varies at different times during the day. This device was adopted in Jackson and in Battle Creek to meet fluctuations in the traffic. To those of the public who are not familiar with the intricacies of the schedule this arrangement is similar in its effect to impunctuality and is for that reason, when economically avoidable, to be depreciated and preference given to the running of intermediate cars conforming to a constant schedule speed and headway.

In the present investigation a measure of regularity of the cars was taken to be the relation existing between the time actually consumed for a round trip and the interval called for by the officials.

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The days chosen for investigation were:

Thursday, Dec. 1st, 1910

Friday, " 2nd, "

Wednesday, " 7th "

The above dates were selected after an inspection of the records, as being normal mid-week days, late enough in the year to be typical of the winter season, and early enough to be free of distortion due to the Christmas rush. As a further safeguard against an unfair situation the Wednesday selected was of a different week from the Thursday and Friday.

The complete details of the analysis may be consulted in the tables which follow.

Briefly speaking, it can be said that 928 trips were investigated in the City of Jackson alone, and that 308 (1.e.33%) of these were found to have been made in times either ahead of or behind the official allowance.

Similar investigations were made for the other cities and over 4100 trips, in all, considered; the results will be discussed later, but at this point it is potent to state that, for the City of Battle Creek (on the same days) out of over 1000 trips, only 7% of them were impunctual. It should also be remarked that in the latter city 12 grade crossings with steam railroads are encountered, as against an equivalent of 4 in Jackson.

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From the foregoing the conclusion is compelled that the irregularity of the service in Jackson is excessive. In seeking a cause for this condition attention is, of course, at once directed to the steam grade crossings, particularly to that on the Eastern section of Main Street, which is negotiated by three of the four street lines operating.

The presence of a crossing of this description is doubly unfortunate both because it actually causes delays, and because it presents a convenient "scape goat" for inefficiencies of all kinds.

With the idea of obtaining some data as to the actual influence of this crossing, which is undoubtedly the worst one encountered anywhere on the M. U. R. System, the writer undertook an 8 hour observation (from a secluded point) at the intersection of the tracks and adequate data with regard to the movements of the cars which passed during that interval, were noted and studied. The complete log of the observation and an analysis of the results will be found upon a later page.

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Table Indicating Distribution of Irregularities of Service.

PERCENT OF TIME CARS WERE IMPUNCTUAL.

LINE	DEC.1st	DEC.2nd	DEC.7th	ALL DAYS
East Main & First St.	32% - - -	5% - - -	5% - - -	14%
Jackson & Francis Sts.	29% - - -	29% - - -	30% - - -	30%
West Main & Cooper - -	43% - - -	40% - - -	35% - - -	40%
Lansing & Page - - - -	67% - - -	45% - - -	57% - - -	54%
<hr/>				
All cars - All lines -	41% - - -	28% - - -	29% - - -	<u>33%</u>
<hr/> <hr/>				

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Table Showing Details of Irregularity on DEC. 1ST, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
East Main & First - -	4 - - -	9 - - -	12 - - -	4
Jackson & Francis - -	8 - - -	6 - - -	6 - - -	6
West Main & Cooper -	13 - - -	7 - - -	6 - - -	4
Lansing & Page - - -	3 - - -	14 - - -	9 - - -	19
<hr/>				
All lines - - - - -	28 - - -	36 - - -	33 - - -	33
<hr/>				

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Table Showing Details of Irregularity on DEC.2ND, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
East Main & First - -	0 - - -	2 - - -	1 - - -	1
Jackson & Francis - -	1 - - -	2 - - -	4 - - -	18
West Main & Cooper -	9 - - -	7 - - -	10 - - -	1
Lansing & Page - --	1 - - -	18 - - -	6 - - -	4
<hr/>				
All lines - - - - -	11 - - -	29 - - -	21 - - -	24
<hr/>				

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Table Showing Details of Irregularity on DEC. 7TH, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
East Main & First - -	1 - - -	2 - - -	2 - - -	2
Jackson & Francis - -	3 - - -	8 - - -	9 - - -	6
West Main & Cooper -	11 - - -	11 - - -	0 - - -	3
Lansing & Page - - -	4 - - -	16 - - -	8 - - -	7
<hr/>				
All lines - - - - -	19 - - -	37 - - -	19 - - -	18
<hr/> <hr/>				

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Turning now to the observation at the Michigan Central crossing, it was found that of the 187 cars which crossed the steam tracks between the hours of 8:20 A.M. and 4:20 P.M. on Wednesday, Jan. 11th, 1911, only 5 of them (2.7%) were delayed more than 2 minutes at this point.

The five more serious delays noted were distributed as under:-

1	delay of 3 minutes to a	Cooper St. Car.
1	" " 3 " " "	an E. Main & First St. Car.
1	" " 4 " " "	a Cooper St. Car.
1	" " 5 " " " " " "	
1	" " 5 " " " "	Page Ave. Car.

(It should be stated that although, as shown above, 2 cars were subjected to delays of 5 minutes, both of them occurred simultaneously so that only one 5 minute delay is chargeable against the Michigan Central).

An independent observation of the amount of obstruction to traffic, regardless of whether a street car happened to be affected or not, disclosed the following:

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THE GATES WERE CLOSED AND TRAFFIC THEREFORE IMPEDED -
A TOTAL OF 72 TIMES DISTRIBUTED AS IN THE TABLE BELOW:

	TIMES	%
1/2 minute to 1 minute - - - -	51 - - - -	71.0
1-1/2 " " 2 minutes- - - -	10 - - - -	13.9
2 minutes " 3 " - - - -	9 - - - -	12.5
4 " " 5 " - - - -	1 - - - -	1.3
6 " - - - -	1 - - - -	1.3
Total - - - -	72 - - - -	100.0

Comment upon the above figures is unnecessary; they indicate that search elsewhere for the cause of the irregularity in Jackson must be made.

As a test of the punctuality of the M. U. R. System during the same 8 hours, the "log" has been referred to as a means of determining the actual headway of the cars on the different lines as compared with that called for by the schedule; the following figures result:

CARS.	% OF TIME CARS WERE 1 MINUTE OR MORE EITHER AHEAD OF OR BEHIND THE CORRECT HEADWAY.
East Main & First St. - - - -	92%
West Main & Cooper St.- - - -	97%
Lansing & Page Ave. - - - -	96%

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Insomuch, however, as a certain amount of error at an intermediate point of this kind must be considered unavoidable, the analysis has been carried further and discloses:-

NUMBER OF TIMES CARS WERE EITHER EARLY OR LATE
AS REGARDS HEADWAY BY FROM --

LINE	1 to 2 MINUTES	3 to 5 MINUTES	6 to 10 MINUTES	MORE THAN 10 MINUTES
East Main & First -	14 - - -	15 - - -	4 - - - -	1
West Main & Cooper-	17 - - -	7 - - -	2 - - - -	2
Lansing & Page - -	7 - - -	3 - - -	6 - - - -	8

Allowing that an inaccuracy of 2 minutes is reasonable, the figures become:-

	NUMBER OF INAC- CURACIES OF 3 MINUTES OR OVER.	% OF TOTAL CARS OBSERVED
East Main & First St. - - -	20 - - - - -	54%
West Main & Cooper St.- - -	21 - - - - -	72%
Lansing & Page Ave. - - -	17 - - - - -	71%

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KEY TO LOG OF OBSERVATION AT
MICHIGAN CENTRAL CROSSING.

E = East.

W = West.

M = East Main & First Street Car.

C = West Main & Cooper " "

P = Lansing & Page " "

WEDNESDAY, JAN. 11th, 1911.
(8:20 A. M. To 4:20 P. M.)

For Key See Previous Page.

Car Number	407	408	409	51	410	411	412	413	414	415	416	417	51	418	419	420	421	422	423	424	425	426	427	428	429	51	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	1496	1497	1498	1499	1500	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	1514	1515	1516	1517	1518	1519	1520	1521	15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TABLE 3. (Cont.)
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Car Number	490	495	493	494	498	51	491	411	490	414	412	495	494	498	493	491	414	51	412	411	495	493	495	494	494	491	495
Marked	M	O	M	M	O	F	F	F	F	L	F	O	M	O	M	O	M	F	F	F	O	M	M	O	M	O	O
Travelling	F	F	F	F	F	F	F	F	F	L	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Stopped	11.41	11.44	11.45	11.50	11.52	11.55	12.00	12.04	12.04	12.05	12.05	12.06	12.11	12.19	12.20	12.24	12.24	12.26	12.31	12.35	12.35	12.38	12.41	12.41	12.43	12.50	12.55
E's delay	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Car Number	411	414	51	495	494	498	493	412	491	495	414	51	411	495	498	493	494	491	495	412	495	411	414	498	51	491	494
Marked	F	M	F	M	M	O	M	F	O	O	M	F	F	M	O	M	O	O	F	M	F	M	O	F	O	M	
Travelling	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Stopped	12.55	12.56	12.56	12.59	1.02	1.12	1.12	1.11	1.15	1.15	1.19	1.19	1.24	1.24	1.27	1.33	1.36	1.38	1.40	1.43	1.44	1.49	1.50	1.52	1.52	1.54	1.56
E's delay	O	O	O	O	O	$\frac{1}{2}$	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$\frac{1}{2}$	O	1	O	1	$\frac{1}{2}$	O
Car Number	495	493	414	498	412	495	51	491	495	411	493	494	498	495	412	491	495	414	411	51	494	493	498	491	414	495	51
Marked	O	M	M	O	F	M	F	O	O	F	M	M	O	M	F	O	O	M	F	F	M	M	O	O	M	O	F
Travelling	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Stopped	2.04	2.06	2.07	2.10	2.13	2.14	2.16	2.17	2.14	2.25	2.28	2.30	2.34	2.35	2.35	2.40	2.44	2.45	2.49	2.50	2.53	2.54	2.57	3.05	3.05	3.08	3.08
E's delay	$\frac{1}{2}$	O	3	2	O	O	O	O	O	O	O	O	1	O	O	O	O	$\frac{1}{2}$	O	O	$\frac{1}{2}$	O	$\frac{1}{2}$	O	O	5	5

CITY OF JACKSON

LOG OF A BOON OBSERVATION AT THE HIGHWAY CENTRAL (See page 10 of P. 100) (See page 11 of P. 100)

WEDNESDAY, JAN. 11th, 1911.

(8:20 A. M. TO 4:20 P. M.)

For Truck	493	418	511	493	494	488	491	495	414	411	51	492	494	488	493	491	414	51	493	411	48	488	494	491
Marked	M	P	P	M	M	O	O	M	M	P	P	P	M	O	M	O	M	P	M	P	M	O	M	O
Travelling	E	E	O	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Stopped	3.15	3.15	3.19	3.23	3.14	3.24	3.28	3.34	3.38	3.40	3.44	3.46	3.48	3.49	4.01	4.02	4.03	4.03	4.05	4.07	4.11	4.14	4.16	4.20
No delay	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0

JACKSON.

SUFFICIENCY OF SERVICE.

Under this heading the schedules might fail:-

1. By providing cars unsufficient in number to accommodate the traffic. In this case inconvenient crowding and probable loss of fares would result.
2. By providing cars so frequently that a considerable number of trips would be made at a loss, or at least that the net results to the Company would not be the best obtainable.

For evidence in support of preconceived ideas the "Trip Sheets" were again referred to.

The number of passengers carried on the various lines and their distribution during the various hours of the day having been noted to be quite invariable, under normal conditions, for a given year and season, it has been deemed unnecessary to present the figures for more than one day, i.e., for DEC. 1ST, 1910.

JACKSON.

TABLE INDICATING DEGREE OF OVER-CROWDING ON THE
VARIOUS LINES.

(NOTE: The assumption has been made that all passengers carried on any semi-round trip occupied the car at the same time.)

LINE	NUMBER OF TIMES SEATING CAPACITY OF CAR WAS EXCEEDED ON A SEMI-ROUND TRIP.	% OF TOTAL
East Main & First St. - - - -	26 - - - - -	14%
Jackson & Francis St. - - - -	14 - - - - -	8%
West Main & Cooper St. - - - -	3 - - - - -	2%
Lansing & Page Ave. - - - -	3 - - - - -	2%
<hr/>		
All lines - - - - -	46 - - - - -	<u>7%</u>
<hr/>		

In no case was the maximum capacity of any car seriously approached, the biggest load carried being 77 passengers in a car having a seating capacity of 39 and a maximum capacity of 110.

JACKSON.

East Main & First Street Line.

ORDINARY SERVICE.

Number of cars in operation - - - - - 4
 Headway - - - - - 12 minutes
 Time for round trip - - - - - 48 "

SPECIAL SERVICE

(From 3 P.M. to 8 P.M. on week days, and from
 1 " " 10 " " Saturdays.)

Cars in operation - - - - - 6
 Headway - - - - - 10 minutes
 Time for round trip - - - - - 60 "

Car miles for round trip = 6.69 miles.

JACKSON.

EAST MAIN & FIRST STREET LINE

Dec. 1st, 1910.

Runs 1 and 16

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - - 19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 5 - - -	<u>56</u>	- - -	61 - - -	5:30 A.M.
" 2 - - - 36 - - -	<u>59</u>	- - -	85 - - -	6:15 "
" 3 - - - 13 - - -	<u>28</u>	- - -	41	
" 4 - - - 31 - - -	<u>22</u>	- - -	53	
" 5 - - - 20 - - -	<u>12</u>	- - -	32	
" 6 - - - 13 - - -	<u>21</u>	- - -	34	
" 7 - - - 15 - - -	<u>18</u>	- - -	33	
" 8 - - - 15 - - -	<u>15</u>	- - -	30	
" 9 - - - <u>44</u> - - -	<u>20</u>	- - -	64 - - -	11:48 "
" 10 - - - <u>29</u> - - -	<u>29</u>	- - -	58	
" 11 - - - 38 - - -	<u>37</u>	- - -	75	
" 12 - - - 39 - - -	<u>19</u>	- - -	58	
" 13 - - - 28 - - -	<u>30</u>	- - -	58	
" 14 - - - 27 - - -	<u>25</u>	- - -	52	
" 15 - - - 27 - - -	<u>56</u>	- - -	83	
" 16 - - - 34 - - -	<u>75</u>	- - -	109 - - -	5:30 P.M.
" 17 - - -				
" 18 - - - 12 - - -	<u>38</u>	- - -	50	
" 19 - - - 37 - - -	<u>22</u>	- - -	59	
" 20 - - - 10 - - -	<u>12</u>	- - -	22	
" 21 - - - 16 - - -	<u>8</u>	- - -	24	
" 22 - - - 17 - - -	<u>26</u>	- - -	43	
" 23 - - - 9 - - -	<u>0</u>	- - -	9	

JACKSON.

EAST MAIN & FIRST STREET LINE

Dec. 1st, 1910.

Runs 2 and 17

Seating Capacity of Car - - - - - 39

Maximum Capacity of Car - - - - - 110

Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	1	44	45	6:00 A.M.
" 2	23	29	52	
" 3	23	35	58	
" 4	31	21	52	
" 5	8	15	23	
" 6	13	11	24	
" 7	17	19	36	
" 8	20	33	53	
" 9	32	39	71	
" 10	45	34	79	12:48 P.M.
" 11	31	32	63	
" 12	25	..	25	
" 13	3	17	20	
" 14	23	18	41	
" 15	46	36	82	4:50 "
" 16	71	29	100	5:56 "
" 17	13	17	30	
" 18	55	18	73	7:48 "
" 19	23	17	40	
" 20	13	16	29	
" 21	2	16	18	10:12 "
" 22	16	18	34	

JACKSON.

EAST MAIN & FIRST STREET LINE

Dec. 1st, 1910.

Runs 3 and 18.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 8 - - -	<u>68</u>	- - - 76	- - - 5:48 A.M.	
" 2 - - - 42 - - -	<u>26</u>	- - - 68	- - - 6:36 "	
" 3 - - - 15 - - -	35	- - - 50		
" 4 - - - 14 - - -	23	- - - 37		
" 5 - - - 19 - - -	26	- - - 45		
" 6 - - - 24 - - -	24	- - - 48		
" 7 - - - 22 - - -	16	- - - 38		
" 8 - - - 37 - - -	<u>46</u>	- - - 83	- - - 11:24 "	
" 9 - - - 45 - - -	<u>30</u>	- - - 75	- - - 12:17 "	
" 10 - - - 22 - - -	17	- - - 39		
" 11 - - - 41 - - -	24	- - - 65	- - - 1:48 "	
" 12 - - - 23 - - -	..	- - - 23		
" 13 - - - 5 - - -	31	- - - 36		
" 14 - - - 23 - - -	28	- - - 51		
" 15 - - - 30 - - -	52	- - - 82		
" 16 - - - 61 - - -	26	- - - 87	- - - 6:00 P.M.	
" 17 - - - 20 - - -	16	- - - 36		
" 18 - - - 39 - - -	21	- - - 60		
" 19 - - - 23 - - -	10	- - - 33		
" 20 - - - 18 - - -	11	- - - 27		
" 21 - - - 34 - - -	31	- - - 65		
" 22 - - - 11 - - -	12	- - - 23		

JACKSON.

EAST MAIN & FIRST STREET LINE.

Dec. 1st, 1910.

Runs 4 and 19.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	39	70	109	6:00 A.M.
" 2	14	31	45	
" 3	34	42	76	
" 4	15	17	32	
" 5	9	16	25	
" 6	24	14	38	
" 7	17	12	29	
" 8	37	35	72	
" 9	11	29	40	
" 10	24	16	40	
" 11	33	19	52	
" 12	18	18	36	2:30 P.M.
" 13	33	30	63	
" 14	53	38	91	3:45 "
" 15	48	61	109	4:40 "
" 16	77	20	97	5:50 "
" 17	33	49	82	6:40 "
" 18	31	13	44	
" 19	20	10	30	
" 20	10	16	26	
" 21	5	18	23	
" 22	14	5	19	

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EAST MAIN & FIRST STREET LINE

Dec. 1st, 1910.

Run Ex.

Seating Capacity of Car - - - - -	39
Maximum Capacity of Car - - - - -	110
Number of revenue passengers necessary per round)	
trip in order to meet running expenses)	19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 -v- -	<u>40</u> - - -	<u>40</u> - - -	80 - - -	4:10 P.M.
" 2 - - -	<u>60</u> - - -	12 - - -	72 - - -	5:13 "
" 3 - - -	25 - - -	13 - - -	38 - - -	6:15 "

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EAST MAIN & FIRST STREET LINE

Dec. 1st, 1910.

Run Ex.

Seating Capacity of Car	- - - - -	39
Maximum Capacity of Car	- - - - -	110
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	- - -	19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	- - - 5	- - - 20	- - - 25	
" 2	- - - <u>69</u>	- - - <u>50</u>	- - - 119	- - - 4:50 P.M.
" 3	- - - 24	- - - 8	- - - 32	
" 4	- - - 18	- - - 24	- - - 42	

JACKSON.

JACKSON & FRANCIS STREET LINE

Cars in operation - - - - -	5
Headway - - - - -	12 minutes
Round Trip Time - - - - -	60 minutes.

Car miles per round trip

(To Vandercook's Lake) - - - 9.04

JACKSON.

JACKSON & FRANCIS STREET LINE.

Dec. 1st, 1910.

Runs 5 and 20.

Seating Capacity of Car - - - - -	39
Maximum Capacity of Car - - - - -	110
Number of revenue passengers necessary per round trip in order to meet running expenses)	25

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 3 - - -	18 - - -	<u>21</u> - - -	5:36 A.M.	
" 2 - - - 22 - - -	12 - - -	<u>35</u>		
" 3 - - - 11 - - -	17 - - -	<u>28</u>		
" 4 - - - 9 - - -	7 - - -	<u>16</u> - - -	8:18 "	
" 5 - - - 9 - - -	5 - - -	<u>14</u> - - -	9:18 "	
" 6 - - - 4 - - -	12 - - -	<u>16</u> - - -	10:18 "	
" 7 - - - 17 - - -	26 - - -	<u>43</u>		
" 8 - - - 6 - - -	13 - - -	<u>19</u> - - -	12:18 P.M.	
" 9 - - - 25 - - -	35 - - -	<u>70</u>		
" 10 - - - 5 - - -	.. - - -	} 9 - - -	2:20 "	
" 11 - - - .. - - -	4 - - -			
" 12 - - - 24 - - -	16 - - -	<u>40</u>		
" 13 - - - 22 - - -	<u>53</u> - - -	<u>75</u> - - -	4:00 "	
" 14 - - - 40 - - -	<u>26</u> - - -	<u>66</u>		
" 15 - - - 16 - - -	10 - - -	<u>26</u>		
" 16 - - - 28 - - -	19 - - -	<u>47</u>		
" 17 - - - 10 - - -	11 - - -	<u>21</u> - - -	8:24 "	
" 18 - - - 11 - - -	15 - - -	<u>26</u>		
" 19 - - - 17 - - -	11 - - -	<u>28</u>		
" 20 - - - 7 - - -	.. - - -	7 - - -	11:24 "	

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JACKSON & FRANCIS STREET LINE.

Dec. 1st, 1910.

Runs 6 and 21.

Seating Capacity of Car - - - - - 24
 Maximum Capacity of Car - - - - - 60
 Number of revenue passengers necessary per }
 round trip in order to meet running expenses) - - - - 25

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 18 - - -	<u>28</u>	46 - - -	5:36 A.M.	
" 2 - - - 16 - - -	<u>36</u>	52 - - -	7:00 "	
" 3 - - - 11 - - -	<u>10</u>	<u>21</u> - - -	8:00 "	
" 4 - - - 5 - - -	8 - - -	<u>13</u> - - -	9:00 "	
" 5 - - - 12 - - -	19 - - -	<u>31</u>		
" 6 - - - 12 - - -	23 - - -	35		
" 7 - - - 27 - - -	24 - - -	51 - - -	12:00 Noon.	
" 8 - - - 26 - - -	20 - - -	46 - - -	1:00 P.M.	
" 9 - - - 18 - - -	10 - - -	28		
" 10 - - - 11 - - -	21 - - -	32		
" 11 - - - 16 - - -	14 - - -	30		
" 12 - - - 23 - - -	<u>35</u>	58 - - -	4:50 P.M.	
" 13 - - - 26 - - -	18 - - -	44		
" 14 - - - 27 - - -	<u>30</u>	57 - - -	7:06 P.M.	
" 15 - - - 4 - - -	<u>13</u>	<u>17</u> - - -	8:10 P.M.	
" 16 - - - 5 - - -	5 - - -	<u>10</u> - - -	9:06 P.M.	
" 17 - - - 11 - - -	6 - - -	<u>17</u> - - -	10:06 P.M.	
" 18 - - - 2 - - -	.. - - -	<u>2</u> - - -	11:06 P.M.	

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JACKSON & FRANCIS STREET LINE

Dec. 1st, 1910.

Runs 7 and 22

Seating Capacity of Car - - - - - 40
 Maximum Capacity of Car - - - - - 95
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - 25

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	0 - - -	17 - - -	<u>17</u> - - -	5:56 A.M.
" 2 - - -	25 - - -	15 - - -	<u>40</u>	
" 3 - - -	9 - - -	19 - - -	<u>28</u>	
" 4 - - -	8 - - -	9 - - -	<u>17</u> - - -	8:44 "
" 5 - - -	13 - - -	12 - - -	<u>25</u>	
" 6 - - -	9 - - -	19 - - -	<u>28</u>	
" 7 - - -	10 - - -	30 - - -	<u>40</u>	
" 8 - - -	11 - - -	18 - - -	<u>29</u>	
" 9 - - -	18 - - -	29 - - -	<u>47</u>	
" 10 - - -	17 - - -	7 - - -	<u>24</u>	
" 11 - - -	6 - - -	36 - - -	<u>42</u>	
" 12 - - -	18 - - -	<u>52</u>	<u>70</u> - - -	4:00 P.M.
" 13 - - -	38 - - -	<u>71</u>	<u>109</u> - - -	5:04 "
" 14 - - -	29 - - -	<u>23</u>	<u>52</u>	
" 15 - - -	32 - - -	17 - - -	<u>49</u>	
" 16 - - -	9 - - -	14 - - -	<u>23</u>	
" 17 - - -	21 - - -	12 - - -	<u>34</u>	
" 18 - - -	27 - - -	11 - - -	<u>38</u>	
" 19 - - -	3 - - -	.. - - -	<u>3</u> - - -	11:18 "

JACKSON.

JACKSON & FRANCIS STREET LINE.

Dec. 1st, 1910.

Runs 8 and 23

Seating capacity of car - - - - -	32
Maximum capacity of car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	25

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	0 - - -	31 - - -	31	
" 2 - - -	29 - - -	10 - - -	39	
" 3 - - -	10 - - -	26 - - -	36	
" 4 - - -	14 - - -	14 - - -	28	
" 5 - - -	10 - - -	15 - - -	25	
" 6 - - -	16 - - -	24 - - -	40	
" 7 - - -	28 - - -	17 - - -	45	
" 8 - - -	14 - - -	24 - - -	38	
" 9 - - -	30 - - -	20 - - -	50	
" 10 - - -	1 - - -	17 - - -	18 - - -	2:20 P.M.
" 11 - - -	16 - - -	17 - - -	33	
" 12 - - -	18 - - -	37 - - -	55 - - -	4:16 "
" 13 - - -	41 - - -	28 - - -	69 - - -	5:15 "
" 14 - - -	9 - - -	20 - - -	29	
" 15 - - -	19 - - -	11 - - -	30	
" 16 - - -	4 - - -	9 - - -	13 - - -	8:30 "
" 17 - - -	5 - - -	16 - - -	21 - - -	9:30 "
" 18 - - -	15 - - -	20 - - -	35	
" 19 - - -	2 - - -	0 - - -	2 - - -	11:30 "

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JACKSON & FRANCIS STREET LINE

Dec. 1st, 1910.

Runs 9 and 24.

Seating Capacity of Car - - - - -	39
Maximum Capacity of Car - - - - -	110
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	25

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 0 - - -	16 - - -	16 - - -	6:06 A.M.	
" 2 - - - 34 - - -	18 - - -	52		
" 3 - - - 19 - - -	14 - - -	33		
" 4 - - - 9 - - -	1 - - -	10 - - -	9:06 "	
" 5 - - - 2 - - -	13 - - -	15 - - -	10:06 "	
" 6 - - - 9 - - -	10 - - -	19 - - -	11:06 "	
" 7 - - - 19 - - -	14 - - -	33		
" 8 - - - 27 - - -	22 - - -	39		
" 9 - - - 15 - - -	31 - - -	46		
" 10 - - - 9 - - -	.. - - -	20 - - -	2:44 P.M.	
" 11 - - - .. - - -	11 - - -			
" 12 - - - 13 - - -	23 - - -	36		
" 13 - - - 32 - - -	55 - - -	87 - - -	4:55 "	
" 14 - - - 39 - - -	29 - - -	68		
" 15 - - - 14 - - -	33 - - -	47		
" 16 - - - 12 - - -	14 - - -	26		
" 17 - - - 11 - - -	12 - - -	23 - - -	9:12 "	
" 18 - - - 14 - - -	9 - - -	23 - - -	10:12 "	
" 19 - - - 8 - - -	5 - - -	13 - - -	11:12 "	

JACKSON.

WEST MAIN & COOPER STREET LINE

Cars in operation - - - - - 3
Headway - - - - - 15 minutes
Round Trip Time - - - - - 45 minutes.

Car Miles per round trip - - - - - 6.23

JACKSON.

WEST MAIN & COOPER STREET LINE

Dec. 1st, 1910.

Runs 10 and 25.

Seating Capacity of Car - - - - -	32
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	18

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	2 - - -	21 - - -	23	
" 2 - - -	13 - - -	28 - - -	41	
" 3 - - -	8 - - -	8 - - -	16 - - -	7:00 A.M.
" 4 - - -	18 - - -	8 - - -	26	
" 5 - - -	8 - - -	7 - - -	15 - - -	8:30 "
" 6 - - -	14 - - -	6 - - -	20	
" 7 - - -	12 - - -	6 - - -	18	
" 8 - - -	7 - - -	8 - - -	15 - - -	10:45 A.M.
" 9 - - -	11 - - -	18 - - -	29	
" 10 - - -	8 - - -	21 - - -	29	
" 11 - - -	14 - - -	7 - - -	21	
" 12 - - -	18 - - -	6 - - -	24	
" 13 - - -	8 - - -	7 - - -	15	
" 14 - - -	3 - - -	8 - - -	11 - - -	2:40 P.M.
" 15 - - -	9 - - -	10 - - -	19	
" 16 - - -	19 - - -	15 - - -	34	
" 17 - - -	12 - - -	46 - - -	58	
" 18 - - -	38 - - -	21 - - -	59	
" 19 - - -	5 - - -	13 - - -	18	
" 20 - - -	16 - - -	17 - - -	33	
" 21 - - -	5 - - -	8 - - -	13 - - -	7:45 "
" 22 - - -	2 - - -	1 - - -	3 - - -	8:30 "
" 23 - - -	18 - - -	12 - - -	30	
" 24 - - -	8 - - -	7 - - -	15 - - -	10:00 "
" 25 - - -	18 - - -	5 - - -	23	

JACKSON.

WEST MAIN & COOPER STREET LINE.

Dec. 1st, 1910.

Runs 11 and 26

Seating Capacity of Car - - - - -	24
Maximum Capacity of Car - - - - -	60
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	18

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 0 - - -	16 - - -	<u>16</u> - - -	5:25 A.M.	
" 2 - - - 19 - - -	15 - - -	<u>34</u>		
" 3 - - - 12 - - -	6 - - -	<u>18</u>		
" 4 - - - 14 - - -	9 - - -	<u>23</u>		
" 5 - - - 12 - - -	7 - - -	<u>19</u>		
" 6 - - - 6 - - -	7 - - -	<u>13</u> - - -	9:05 A.M.	
" 7 - - - 9 - - -	9 - - -	<u>18</u>		
" 8 - - - 15 - - -	4 - - -	<u>19</u>		
" 9 - - - 17 - - -	9 - - -	<u>26</u>		
" 10 - - - 18 - - -	10 - - -	<u>28</u>		
" 11 - - - 9 - - -	16 - - -	<u>25</u>		
" 12 - - - 12 - - -	16 - - -	<u>28</u>		
" 13 - - - 8 - - -	v. - - -	<u>8</u>		
" 14 - - - 4 - - -	11 - - -	<u>15</u> - - -	2:35 P.M.	
" 15 - - - 14 - - -	16 - - -	<u>30</u>		
" 16 - - - 16 - - -	17 - - -	<u>33</u>		
" 17 - - - <u>33</u> - - -	30 - - -	<u>63</u>		
" 18 - - - <u>23</u> - - -	10 - - -	<u>33</u>		
" 19 - - - 17 - - -	12 - - -	<u>29</u>		
" 20 - - - 9 - - -	11 - - -	<u>20</u>		
" 21 - - - 5 - - -	12 - - -	<u>13</u> - - -	7:38 "	
" 22 - - - 6 - - -	8 - - -	<u>14</u> - - -	8:23 "	
" 23 - - - 6 - - -	7 - - -	<u>13</u> - - -	9:08 "	
" 24 - - - 11 - - -	13 - - -	<u>24</u>		
" 25 - - - 19 - - -	1 - - -	<u>20</u>		
" 26 - - - 11 - - -	.. - - -	<u>11</u>		

JACKSON.

WEST MAIN & COOPER STREET LINE

Dec. 1st, 1910.

Runs 12 and 27.

Seating Capacity of Car - - - - -	32
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	18

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 0 - - -	15 - - -	<u>15</u> - - -	5:40 A.M.	
" 2 - - - 29 - - -	5 - - -	<u>34</u>		
" 3 - - - 11 - - -	11 - - -	<u>22</u>		
" 4 - - - 12 - - -	6 - - -	<u>18</u>		
" 5 - - - 6 - - -	7 - - -	<u>13</u> - - -	8:38 "	
" 6 - - - 4 - - -	2 - - -	<u>6</u> - - -	9:23 "	
" 7 - - - 8 - - -	8 - - -	<u>16</u> - - -	10:07 "	
" 8 - - - 6 - - -	5 - - -	<u>11</u> - - -	10:53 "	
" 9 - - - 17 - - -	14 - - -	<u>31</u>		
" 10 - - - 11 - - -	12 - - -	<u>23</u>		
" 11 - - - 9 - - -	16 - - -	<u>25</u>		
" 12 - - - 17 - - -	7 - - -	<u>24</u>		
" 13 - - - 5 - - -	10 - - -	<u>15</u> - - -	2:36 P.M.	
" 14 - - - 10 - - -	8 - - -	<u>18</u>		
" 15 - - - 7 - - -	23 - - -	<u>30</u>		
" 16 - - - 21 - - -	23 - - -	<u>44</u>		
" 17 - - - 12 - - -	31 - - -	<u>43</u>		
" 18 - - - 22 - - -	8 - - -	<u>30</u>		
" 19 - - - 4 - - -	11 - - -	<u>15</u> - - -	7:10 "	
" 20 - - - 21 - - -	12 - - -	<u>33</u>		
" 21 - - - 5 - - -	3 - - -	<u>8</u> - - -	8:38 "	
" 22 - - - 3 - - -	6 - - -	<u>9</u> - - -	9:22 "	
" 23 - - - 0 - - -	0 - - -	<u>0</u> - - -	10:25 "	

JACKSON.

LANSING & PAGE AVE. LINE.

Cars in operation - - - - -	3
Headway - - - - -	15 minutes
Round trip time - - - - -	45 minutes.
Car miles per round trip - - - - -	6.69

JACKSON.

LANSING & PAGE AVE. LINE.

Dec. 1st, 1910.

Runs 13 and 28

Seating Capacity of Car - - - - -	32
Maximum capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 0 - - -	5 - - -	5 - - -	5 - - -	5:25 A.M.
" 2 - - - 18 - - -	6 - - -	24		
" 3 - - - 9 - - -	13 - - -	22		
" 4 - - - 13 - - -	17 - - -	30		
" 5 - - - 7 - - -	5 - - -	12 - - -	8:30 P.M.	
" 6 - - - 7 - - -	7 - - -	14 - - -	9:10 "	
" 7 - - - 7 - - -	1 - - -	8 - - -	9:55 "	
" 8 - - - 8 - - -	12 - - -	20		
" 9 - - - 21 - - -	12 - - -	33		
" 10 - - - 16 - - -	6 - - -	22		
" 11 - - - 13 - - -	19 - - -	32		
" 12 - - - 11 - - -	7 - - -	18 - - -	2:05 "	
" 13 - - - 2 - - -	10 - - -	12		
" 14 - - - 20 - - -	5 - - -	15 - - -	3:15 "	
" 15 - - - 13 - - -	17 - - -	30		
" 16 - - - 25 - - -	14 - - -	39		
" 17 - - - 15 - - -	3 - - -	18 - - -	6:15 "	
" 18 - - - 11 - - -	7 - - -	18 - - -	7:10 "	
" 19 - - - 7 - - -	0 - - -	7 - - -	8:00 "	
" 20 - - - 6 - - -	1 - - -	7 - - -	8:45 "	
" 21 - - - 4 - - -	5 - - -	9 - - -	9:40 "	
" 22 - - - 9 - - -	3 - - -	12 - - -	10:25 "	

JACKSON.

LANSING & PAGE AVE. LINE.

Dec. 1st, 1910.

Runs 14 and 29.

Seating Capacity of Car - - - - - 24
 Maximum Capacity of Car - - - - - 60
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - 19

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	22	14	26	
" 2	15	2	17	7:00 A.M.
" 3	4	10	14	7:50 "
" 4	8	7	15	8:38 "
" 5	6	8	14	9:20 "
" 6	4	7	11	10:10 "
" 7	11	3	14	10:55 "
" 8	7	8	15	11:45 "
" 9	7	15	22	
" 10	4	6	10	1:25 P.M.
" 11	10	10	20	
" 12	6	..)	19	
" 13	..	13)	13	
" 14	15	17	32	
" 15	16	38	54	
" 16	24	36	50	
" 17	4	..)	27	
" 18	..	23)	23	
" 19	18	17	35	
" 20	9	..)	14	8:15 P.M.
" 21	..	5)	5	
" 22	7	11	18	9:08 "
" 23	15	9	24	
" 24	14	10	24	
" 25	2	..	2	11:30 "

JACKSON.

LANSING & PAGE AVE. LINE.

Dec. 1st, 1910.

Runs 15 and 30.

Seating capacity of Car - - - - - 32
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - 19

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 0 - - - 16 - - -	16	6:00 A.M.		
" 2 - - - 16 - - - 15 - - -	31			
" 3 - - - 4 - - - 16 - - -	20			
" 4 - - - 6 - - - 7 - - -	13	8:20 "		
" 5 - - - 3 - - - 9 - - -	12	9:04 "		
" 6 - - - 12 - - - 12 - - -	24			
" 7 - - - 5 - - - 11 - - -	16	10:40 "		
" 8 - - - 6 - - - 9 - - -	15	11:35 "		
" 9 - - - 16 - - - 8 - - -	24			
" 10 - - - 6 - - - 9 - - -	15	1:10 P.M.		
" 11 - - - 8 - - - 16 - - -	24			
" 12 - - - 7 - - - .. - - -	7			
" 13 - - - 4 - - - 13 - - -	17	2:25 "		
" 14 - - - 5 - - - 7 - - -	12	3:00		
" 15 - - - 11 - - - 32 - - -	43			
" 16 - - - 42 - - - 45 - - -	87			
" 17 - - - 6 - - - 9 - - -	15	5:55		
" 18 - - - 12 - - - 13 - - -	25			
" 19 - - - 2 - - - 12 - - -	14	7:45		
" 20 - - - 6 - - - 4 - - -	10	8:40		
" 21 - - - 4 - - - .. - - -	4	9:35		

JACKSON.

From the foregoing it will be gathered that sufficient cars are being provided to meet the normal movements of the traffic. At extraordinary times it can only be assumed that the authorities concerned will meet the increased demands by varying measures suited to the particular needs of each individual case.

JACKSON.

With regard to the reverse of the preceding problem. i.e., the question of whether or not an excess of service is being provided, the tables already given on p.p. 19-40 have been further investigated with regard to the unprofitable nature of certain of the trips.

As a prelude, it has been computed, by means of data abstracted from the last Annual Report of the M.U.R., that the average cost of operating in Jackson is 11.63¢ per car mile, and that the average fare collected per revenue passenger is 4.22¢. With these data and knowing the length of a round trip in each instance, the table given below has been prepared.

JACKSON.

Dec. 1st, 1910.

NO. OF REVENUE PASSENGERS NECESSARY PER ROUND TRIP IN ORDER TO MEET RUNNING EXPENSES..	% OF TIME CARS WERE OPERATED AT A LOSS ON DEC. 1st, 1910.	% OF TIME CARS ARE IMPUNCTUAL
East Main & First St. - - - - - 19 - - - - -	2.1%	14%
Jackson & Francis St. - - - - - 25 - - - - -	31.0%	30%
West Main & Cooper St. - - - - - 18 - - - - -	34.0%	40%
Lansing & Page Ave. - - - - - 19 - - - - -	57.0%	54%
All Lines - - - - -	28%	

JACKSON.

From the table it is evident that the East Main & First Street service is not excessive. The long, barren area traversed between the city limits and Vandercook Lake is responsible for much of the loss on the Jackson & Francis Street Line. This situation has already been met by a change of schedule placed in operation on January 1st.

The indifferent showing made by the other two lines can not be so easily remedied since there is not, as in the previous case, any well defined unprofitable area. Two possible methods of improving conditions present themselves, i.e.:-

1. To reduce the car mileage.
2. To promote traffic by improving the service, notably by introducing greater punctuality. On both the lines being considered the headway is already considerable at 15 minutes and this should not be increased without serious consideration, and at all events, not until the more glaring defect has been remedied.

JACKSON.

EFFECT OF CHANGE OF SCHEDULE ON THE
FRANCIS & JACKSON LINE.

Mention has already been made of a reduction in service to Vandercook's Lake. This resulted from observation made by Mr. Faber prior to the commencement of the present investigation.

The change went into effect on January 1st of the present year. Its result is already apparent and serves a useful purpose in indicating the advantages of intelligent manipulation meeting varying conditions.

JACKSON.

A study of the most recent data available for the Francis & Jackson Line reveals the following satisfactory changes:

	FORMERLY	AT PRESENT
Car miles per round trip - - - - -	8.04 - - - -	6.54
% Unprofitability - - - - -	30% - - -	16.3%
Daily Earnings - - - - -	\$112.00 - - -	\$121.00
" Operating Expenses - - - -	122.00 - - -	101.00
" Profit (+) or loss (-) - -	-10.00 - - -	+20.00
Equivalent to profit (+) or loss (-) per 6 months)	- - -1800.00 - -	- +3600.00
Car Miles per day - - - - -	1051 - - -	869
Earnings per car mile - - - - -	10.60¢ - - -	13.92¢

JACKSON

JACKSON & FRANCIS STREET LINE.

Jan. 18th, 1911.

Table Showing Conditions under reduced schedule and intended to be compared with those on p.p.28 - 32; 2.5 car miles per round trip are saved by the new arrangement; approximately the same number of passengers are carried as before and the percent unprofitably has been reduced from 30% to 16.3%

Run Commencing at 5:48 A.M.

	NUMBER OF PASSENGERS CARRIED			REMARKS.
	OUTWARD	INWARD	TOTAL	
Trip No. 1	- - -3	- - -22	- - -25	
" 2	- - -27	- - -21	- - -48	
" 3	- - -25	- - -28	- - -53	
" 4	- - -14	- - -10	- - -24	
" 5	- - -17	- - -12	- - -29	
" 6	- - -7	- - -7	- - -14	- - - 10:48 A.M.
" 7	- - -18	- - -48	- - -66	
" 8	- - -20	- - -20	- - -40	
" 9	- - -16	- - -21	- - -37	
" 10	- - -14	- - -	- - -14	
" 11	- - -	- - -4	- - -4	- - - 2:36 P.M.
" 12	- - -17	- - -16	- - -33	
" 13	- - -32	- - -22	- - -54	
" 14	- - -36	- - -20	- - -56	
" 15	- - -29	- - -17	- - -46	
" 16	- - -32	- - -12	- - -44	
" 17	- - -18	- - -19	- - -36	
" 18	- - -13	- - -27	- - -40	
" 19	- - -17	- - -1	- - -1	- - - 10:48 "

JACKSON

JACKSON & FRANCIS STREET LINE.

Jan. 18th, 1911.

Run Commencing at 5:36 A. M.

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1	- - - .. - - -	19 - - -	19 - - -	
" 2	- - - 30 - - -	9 - - -	39	
" 3	- - - 10 - - -	9 - - -	19	
" 4	- - - 3 - - -	3 - - -	<u>6</u> - - -	8:24 A.M.
" 5	- - - 8 - - -	12 - - -	20	
" 6	- - - 11 - - -	13 - - -	24	
" 7	- - - 19 - - -	23 - - -	32	
" 8	- - - 16 - - -	10 - - -	26	
" 9	- - - 17 - - -	22 - - -	39	
" 10	- - - 8 - - -	.. - - -	<u>8</u> - - -	2:24 P.M.
" 11	- - - .. - - -	6 - - -	<u>6</u> - - -	2:36 "
" 12	- - - 16 - - -	12 - - -	28	
" 13	- - - 21 - - -	31 - - -	52	
" 14	- - - 32 - - -	50 - - -	82	
" 15	- - - 25 - - -	6 - - -	31	
" 16	- - - 9 - - -	23 - - -	32	
" 17	- - - 27 - - -	15 - - -	32	
" 18	- - - 11 - - -	21 - - -	32	
" 17	- - - 16 - - -	18 - - -	34	
" 20	- - - 16 - - -	12 - - -	28	
" 21	- - - 1 - - -	.. - - -	<u>1</u> - - -	11:24 "

JACKSON.

JACKSON & FRANCIS STREET LINE.

Jan. 18th, 1911.

Run Commencing at 5:54 A.M.

NUMBER OF PASSENGERS CARRIED.

		OUTWARD	INWARD	TOTAL	REMARKS
Trip No.	1	- - - 1	- - - 11	- - - <u>12</u>	5:45 A.M.
"	2	- - - 19	- - - 20	- - - <u>39</u>	
"	3	- - - 4	- - - 13	- - - <u>17</u>	7:38 "
"	4	- - - 12	- - - 5	- - - <u>17</u>	8:53 "
"	5	- - - 16	- - - 8	- - - <u>24</u>	
"	6	- - - 10	- - - 15	- - - <u>25</u>	
"	7	- - - 12	- - - 33	- - - <u>45</u>	
"	8	- - - 17	- - - 15	- - - <u>32</u>	
"	9	- - - 21	- - - 26	- - - <u>47</u>	
"	10	- - - 15	- - - 1	- - - <u>16</u>	2:36 P.M.
"	11	- - - 8	- - - 16	- - - <u>24</u>	
"	12	- - - 23	- - - 21	- - - <u>44</u>	
"	13	- - - 35	- - - 26	- - - <u>61</u>	
"	14	- - - 31	- - - 21	- - - <u>52</u>	
"	15	- - - 25	- - - 30	- - - <u>55</u>	
"	16	- - - 14	- - - 14	- - - <u>28</u>	
"	17	- - - 9	- - - 2	- - - <u>11</u>	9:12 "
"	18	- - - 17	- - - 10	- - - <u>27</u>	
"	19	- - - 22	- - - 3	- - - <u>25</u>	

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JACKSON & FRANCIS STREET LINE

Jan. 18th, 1911.

Run Commencing at 6:00 A.M.

NUMBER OF PASSENGERS CARRIED

		OUTWARD	INWARD	TOTAL	REMARKS
Trip No.	1	- - - 22	- - - 18	- - - 40	
"	2	- - - 9	- - - 20	- - - 29	
"	3	- - - 16	- - - 20	- - - 36	
"	4	- - - 16	- - - 6	- - - 22	
"	5	- - - 12	- - - 14	- - - 26	
"	6	- - - 19	- - - 5	- - - 24	
"	7	- - - 18	- - - 10	- - - 28	
"	8	- - - 14	- - - 14	- - - 28	
"	9	- - - 15	- - - 6	- - - 21	
"	10	- - - 5	- - - 15	- - - 20	
"	11	- - - 10	- - - 29	- - - 39	
"	12	- - - 25	- - - 32	- - - 57	
"	13	- - - 26	- - - 23	- - - 49	
"	14	- - - 5	- - - 17	- - - 22	
"	15	- - - 22	- - - 17	- - - 39	
"	16	- - - 7	- - - 16	- - - 23	
"	17	- - - 12	- - - 18	- - - 30	
"	18	- - - 8	- - - 10	- - - <u>18</u>	10:36 P.M.
"	19	- - - 1	- - - ..	- - - <u>1</u>	11:36 "

JACKSON.

JACKSON & FRANCIS STREET LINE.

Jan. 18th, 1911.

Run Commencing at 6:12 A.M.

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1	- - - 3	- - - 18	- - - 21	
" 2	- - - 27	- - - 21	- - - 48	
" 3	- - - 16	- - - 10	- - - 26	
" 4	- - - 7	- - - 11	- - - 18	
" 5	- - - 5	- - - 15	- - - 20	
" 6	- - - 5	- - - 14	- - - 19	
" 7	- - - 19	- - - 11	- - - 30	
" 8	- - - 17	- - - 23	- - - 40	
" 9	- - - 27	- - - 18	- - - 45	
" 10	- - - 7	- - - ..	- - - 7	- - - 2:48 P.M.
" 11	- - - 8	- - - 15	- - - 23	
" 12	- - - 15	- - - 22	- - - 37	
" 13	- - - 31	- - - 21	- - - 52	
" 14	- - - 39	- - - 34	- - - 74	
" 15	- - - 19	- - - 28	- - - 47	
" 16	- - - 19	- - - 2	- - - 21	
" 17	- - - 9	- - - 13	- - - 22	
" 18	- - - 22	- - - 17	- - - 39	
" 19	- - - 7	- - - 4	- - - <u>11</u>	- - - 10:36 "

JACKSON.

SWITCHES.

In the course of the observation at the M. C. crossing the writer had ample opportunity to note the troubles produced by a badly placed switch in that vicinity, i.e., the one used in deflecting the Cooper Street cars from the Main Street Line.

The point of this switch which, to cars going East, must be thrown before a crossing of the M. C. can be attempted, is so situated in a hole that, during a rain or a thaw, it is deeply immersed in muddy water and can only be operated after a fishing process participated in, often, by the conductors of two or three waiting cars. On many occasions so much delay results from this cause that cars which otherwise could effect a crossing of the tracks are prevented from so doing by the closing of the gates just as success at the switch is attained.

BATTLE CREEK.

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BATTLE CREEK.

At the other cities controlled by the M. U. R. investigations similar to those at Jackson were conducted. The methods adopted were identical and the points considered the same. With this emphasized it is thought that the accompanying tables will largely speak for themselves: Brief notes relating to them will therefore suffice.

BATTLE CREEK is characterized by a small population, but one given to travelling, as is evidenced by the comparatively high earnings per capita, \$6.12. This is probably to be explained by the punctuality of the service (which is the best in the M.U.R. System) and by the fact that greater facilities are afforded, the car miles per capita/yr. amounting to 32.5 as against 30, 29.2, and 25.8 in the other cities.

The cost of operation per car mile is the lowest but that conditions can be bettered is evidenced by the low percentage of over-crowding (3%) and the high percentage of unprofitability (31%).

Reference to the table on p. 58⁵⁷ reveals the fact that most of the unprofitable trips occur on the WASHINGTON & MARSHALL Line and on the GARFIELD & UPTON. The former, however, owing to the well balanced nature of its traffic, is, in the aggregate, a profitable investment and gave a net profit of \$41.00 on Dec. 1st, 1910.

BATTLE CREEK.

Dealing further with this line, and referring to p. 63, it will be noted that the headway is 10 minutes, giving a figure sufficiently small, it would seem, for considerable reduction of service to be possible, bearing in mind, always, that great frequency is unnecessary if punctuality is strictly adhered to.

Force is lent to this idea by the table of percentages of over-crowding on p. 62 in which it is seen that the line stands at the low figure of 4.5%, as against 20% for the College Line in Lansing.

A study of the tables commencing on p. 64 indicates that the earnings on all runs are particularly lean during the hours of 8:00 to 11:00 A.M., and from 7:00 P. M. to midnight. The nearest approach to crowded hours occurs in the neighborhood of from 6:00 to 7:00 A. M., and from 5:00 to 6:00 P. M.

ON THE GARFIELD & UPTON the 15 minute headway should not be increased but, unless political reasons prevent, a change looking to decreased service toward the "Post Addition" would be effective. The Garfield & Upton line on Dec. 1st, last, realized but \$3.00 net profit.

THE MAPLE & LAKE LINE also holds out prospects for a betterment of conditions. By reducing the service to the south, beyond the junction of Sidwell Street

BATTLE CREEK.

and Lake Ave., about 1.6 car miles per trip affected could be saved; this, for 6 months, would amount to about \$1800.00 saving in operating expenses, based upon a 1 hour service to the most remote point.

THE MAIN STREET LINE is more satisfactory than its high percentage of unprofitable trips and low proportion of crowded ones at first indicate. The traffic, rather than running to extremes, is well balanced throughout the day and returned a net profit of \$34.00 on Dec. 1st, last. If the complicated schedule in force (see p. 73) may be accepted as a guide, the Main Street Line has received much attention in the past. The small number of over-crowded cars travelling (2.5%) would indicate that much simplified conditions might prevail with satisfactory results to the finances of the company, to operatives, and to the office force.

BATTLE CREEK.

Dec. 1st, 1910.

Line.	NO. OF REVENUE PAS- SENGERS NECESSARY PER ROUND TRIP IN ORDER TO MEET RUN- NING EXPENSES.	% OF TIME CARS WERE OPERATED AT A LOSS ON DEC. 1st, 1910.
Washington & Marshall - - -	16 - - - - -	35%
Maple & Lake - - - - -	19 - - - - -	20%
(On Waverly Cars	21	
Main Street(- - - - -	- - - - -	21.6%
(" other cars,	16	
Garfield & Upton - - - - -	18 - - - - -	46%
		<hr/>
		31%

BATTLE CREEK.

Table Indicating Distribution of Irregularities of Service.

PERCENT OF TIME CARS WERE IMPUNCTUAL.

LINE	DEC.1st	DEC.2nd	DEC.7th	ALL DAYS.
Marshall & Washington	3.5% - -	6.1% - -	3.5% - -	4.4%
Maple & Lake - - - -	5.3% - -	1.3% - -	2.5% - -	3.0%
Main Street - - - -	6.0% - -	10.6% - -	4.7% - -	7.0%
Garfield & Upton - -	15.0% - -	6.4% - -	22 % - -	14.4%
<hr/>				
All lines - - - -	7.1% - -	6.1% - -	7.6% - -	<u>6.9%</u>
<hr/> <hr/>				

BATTLE CREEK.

Table Showing Details of Irregularity on DEC. 1ST, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Marshall & Washington -	0 - - -	0 - - -	2 - - -	2
Maple & Lake - - - -	0 - - -	0 - - -	0 - - -	4
Main Street - - - - -	5 - - -	0 - - -	0 - - -	0
Garfield & Upton - - -	6 - - -	0 - - -	3 - - -	2
<hr/>				
All lines - - - - -	11 - - -	0 - - -	5 - - -	8

BATTLE CREEK.

Table Showing Details of Irregularity on DEC. 2nd, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Marshall & Washington -	0 - - -	2 - - -	3 - - -	2
Maple & Lake - - - -	0 - - -	0 - - -	0 - - -	1
Main Street - - - - -	0 - - -	4 - - -	2 - - -	2
Garfield & Upton - - -	0 - - -	0 - - -	4 - - -	1
<hr/>				
All lines - - - - -	0 - - -	6 - - -	9 - - -	6
<hr/>				

BATTLE CREEK.

Table Showing Details of Irregularity on DEC. 7th, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Marshall & Washington-	0 - - -	3 - - -	1 - - -	0
Maple & Lake - - - -	0 - - -	0 - - -	0 - - -	2
Main Street - - - - -	0 - - -	0 - - -	2 - - -	2
Garfield & Upton - - -	5 - - -	3 - - -	5 - - -	4
<hr/>				
All lines - - - - -	5 - - -	6 - - -	8 - - -	8

BATTLE CREEK.

TABLE INDICATING DEGREE OF OVER-CROWDING
ON THE VARIOUS LINES.

LINE.	NUMBER OF TIMES SEATING CAPACITY OF CAR WAS EX- CEEDED ON A SEMI- ROUND TRIP.	% OF TOTAL
Marshall & Washington - -	10 - - - - -	4.5%
Maple & Lake - - - - -	0 - - - - -	0 %
Main Street - - - - -	4 - - - - -	2.5%
Garfield & Upton - - - -	4 - - - - -	2.8%
<hr/>		
All lines - - - - -	18 - - - - -	2.7%
<hr/>		

In one case the alleged maximum capacity was exceeded; the second heaviest load amounted to 64 persons in a car of maximum capacity of 70.

BATTLE CREEK.

MARSHALL & WASHINGTON AVE. LINE.

Number of cars in operation - - - - - 4

Headway - - - - - 10 minutes

Time for Round Trip - - - - - 40 "

	) 22 Trips to Grand Trunk Shops	6.06
Car Miles per	) 17 " " Chilson Road	6.32
Round Trip	) Balance " Corn Flakes Bldg.	5.54
	) 2 Trippers except Sunday - - - -	4.00

BATTLE CREEK.

MARSHALL & WASHINGTON AVE. LINE.

Dec. 1st, 1910.

Run Commencing 5:20 A.M.

Seating Capacity of Car - - - - -	28
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	16

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 0 - - -	17 - - -	17		
" 2 - - - 10 - - -	16 - - -	26		
" 3 - - - 23 - - -	12 - - -	35		
" 4 - - - 14 - - -	17 - - -	31		
" 5 - - - 13 - - -	11 - - -	24		
" 6 - - - 3 - - -	2 - - -	5 - - -	8:30 A.M.	
" 7 - - - 9 - - -	3 - - -	12 - - -	9:10 "	
" 8 - - - 7 - - -	3 - - -	10 - - -	9:50 "	
" 9 - - - 2 - - -	7 - - -	9 - - -	10:30 "	
" 10 - - - 11 - - -	6 - - -	17		
" 11 - - - 10 - - -	12 - - -	22		
" 12 - - - 9 - - -	.. - - -	9		
" 13 - - - 12 - - -	13 - - -	25		
" 14 - - - 15 - - -	7 - - -	22		
" 15 - - - 15 - - -	.. - - -	15 - - -	2:30 P.M.	
" 16 - - - 2 - - -	6 - - -	8 - - -	2:45 "	
" 17 - - - 9 - - -	9 - - -	18		
" 18 - - - 9 - - -	6 - - -	15 - - -	3:50 "	
" 19 - - - 21 - - -	12 - - -	33		
" 20 - - - 60 - - -	25 - - -	85 - - -	5:18 "	
" 21 - - - 48 - - -	6 - - -	54 - - -	5:50 "	
" 22 - - - 4 - - -	4 - - -	8 - - -	6:30 "	
" 23 - - - 16 - - -	10 - - -	26		
" 24 - - - 13 - - -	16 - - -	29		
" 25 - - - 3 - - -	5 - - -	8 - - -	8:30 "	
" 26 - - - 7 - - -	7 - - -	14 - - -	9:10 "	
" 27 - - - 2 - - -	4 - - -	6 - - -	9:50 "	
" 28 - - - 3 - - -	6 - - -	9 - - -	10:30 "	
" 29 - - - 4 - - -	8 - - -	12 - - -	11:10 "	
" 30 - - - 0 - - -	.. - - -	0 - - -	11:50 "	

BATTLE CREEK.

MARSHALL & WASHINGTON AVE. LINE.

Dec. 1st, 1910.

Run Commencing 5:25 A.M.

Seating Capacity of Car - - - - -	28
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	16

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No.	..	7	75	5:25 A.M.
" 1	6	16	22	
" 2	11	22	33	
" 3	3	12	14	7:00 "
" 4	9	23	32	
" 5	8	8	14	8:20 "
" 6	6	8	14	9:00 "
" 7	1	9	10	9:40 "
" 8	7	5	12	10:20 "
" 9	6	7	13	11:00 "
" 10	15	10	25	
" 11	13	12	25	
" 12	7	13	20	
" 13	20	17	37	
" 14	18	5	23	
" 15	5	12	17	
" 16	12	17	29	
" 17	16	17	33	
" 18	15	40	55	
" 19	26	20	46	
" 20	37	8	45	
" 21	18	8	26	
" 22	14	18	32	
" 23	15	8	23	
" 24	5	5	10	8:40 P.M.
" 25	8	5	13	9:20 "
" 26	7	36	43	
" 27	19	4	23	
" 28	6	0	6	11:20 "

BATTLE CREEK

MARSHALL & WASHINGTON AVE. LINE.

Dec. 1st, 1910.

Run Commencing 5:30 A.M.

Seating Capacity of Car - - - - -	28
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	16

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 0 - - -	5 - - -	5 - - -	5 - - -	5:30 A.M.
" 2 - - - 28 - - -	<u>56</u> - - -	82 ⁵ - - -	6:00 "	
" 3 - - - 16 - - -	<u>9</u> - - -	25 ⁵ - - -		
" 4 - - - 8 - - -	<u>34</u> - - -	40 ⁵ - - -	7:20 "	
" 5 - - - 9 - - -	<u>7</u> - - -	18 - - -		
" 6 - - - 20 - - -	<u>7</u> - - -	27 ⁶ - - -		
" 7 - - - 17 - - -	<u>9</u> - - -	26 - - -		
" 8 - - - 3 - - -	<u>14</u> - - -	17 - - -		
" 9 - - - 9 - - -	<u>6</u> - - -	15 ⁶ - - -	10:40 "	
" 10 - - - 9 - - -	<u>11</u> - - -	20 - - -		
" 11 - - - 20 - - -	<u>8</u> - - -	28 - - -		
" 12 - - - 15 - - -	<u>9</u> - - -	24 ⁶ - - -		
" 13 - - - 14 - - -	<u>13</u> - - -	27 - - -		
" 14 - - - 20 - - -	<u>12</u> - - -	32 - - -		
" 15 - - - 6 - - -	<u>..</u> - - -	27 ⁶ - - -		
" 16 - - - 1 - - -	<u>20</u> - - -			
" 17 - - - 20 - - -	<u>17</u> - - -	37 - - -		
" 18 - - - 10 - - -	<u>21</u> - - -	31 ⁶ - - -		
" 19 - - - 20 - - -	<u>38</u> - - -	58 - - -	4:40 P.M.	
" 20 - - - 35 - - -	<u>10</u> - - -	45 - - -	5:20 "	
" 21 - - - 51 - - -	<u>11</u> - - -	62 ⁶ - - -	6:00 "	
" 22 - - - 15 - - -	<u>8</u> - - -	23 - - -		
" 23 - - - 21 - - -	<u>20</u> - - -	41 - - -		
" 24 - - - 7 - - -	<u>4</u> - - -	11 ⁶ - - -	8:00 "	
" 25 - - - 5 - - -	<u>21</u> - - -	26 - - -		
" 26 - - - 5 - - -	<u>5</u> - - -	10 - - -	9:20 "	
" 27 - - - 7 - - -	<u>27</u> - - -	34 ⁶ - - -		
" 28 - - - 5 - - -	<u>4</u> - - -	9 - - -	10:40 "	
" 29 - - - 3 - - -	<u>0</u> - - -	<u>3</u> - - -	11:20 "	

BATTLE CREEK

MARSHALL & WASHINGTON AVE. LINE.

Dec. 1st, 1910.

Run Commencing at 5:40 A.M.

Seating Capacity of Car - - - - - 28
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per }
 round trip in order to meet running expenses) - - 16

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1	0	8	8	5:40 A.M.
" 2	21	20	41 ⁵	
" 3	15	13	28 ⁵	
" 4	22	22	44	
" 5	8	8	16	
" 6	11	8	19	
" 7	14	17	31	
" 8	4	4	8	10:10 "
" 9	12	8	20	
" 10	7	4	11	11:30 "
" 11	11	16	27 ⁵	
" 12	7	11	18 ⁵	
" 13	13	8	21 ⁵	
" 14	17	10	27	
" 15	2	14	16	
" 16	9	5	14	3:10 P.M.
" 17	9	17	26	
" 18	16	44	60	4:30 "
" 19	13	29	42	5:10 "
" 20	20	21	41	
" 21	4	19	23	
" 22	14	23	37	
" 23	39	11	49	7:50 "
" 24	1	3	4	8:30 "
" 25	7	7	14	9:10 "
" 26	5	3	8	9:50 "
" 27	12	2	14	10:30 "
" 28	4	0	4	11:10 "
..			0	11:50 "

BATTLE CREEK.

MAPLE & LAKE LINE.

Number of Cars in operation - - - - -	4
Headway - - - - -	15 minutes
Time for Round Trip - - - - -	60 "
Car miles per round trip - - - - -	7.44 miles

BATTLE CREEK

MAPLE & LAKE LINE.

Dec. 1st, 1910.

Run Commencing at 5:30 A.M.

Seating Capacity of Car - - - - - 39

Maximum Capacity of Car - - - - - 110

Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 19

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 3 - - -	9 - - -	<u>12</u> - - -	5:30 A.M.	
" 2 - - - 24 - - -	14 - - -	<u>38</u>		
" 3 - - - 17 - - -	17 - - -	34		
" 4 - - - 13 - - -	9 - - -	22		
" 5 - - - 3 - - -	9 - - -	<u>12</u> - - -	9:15 "	
" 6 - - - 10 - - -	9 - - -	<u>19</u>		
" 7 - - - 16 - - -	18 - - -	34		
" 8 - - - 5 - - -	15 - - -	20		
" 9 - - - 18 - - -	26 - - -	34		
" 10 - - - 14 - - -	7 - - -	21		
" 11 - - - 8 - - -	12 - - -	20		
" 12 - - - 9 - - -	26 - - -	35		
" 13 - - - 33 - - -	26 - - -	59		
" 14 - - - 27 - - -	21 - - -	41		
" 15 - - - 6 - - -	16 - - -	22		
" 16 - - - 30 - - -	2 - - -	32		
" 17 - - - 7 - - -	16 - - -	23		
" 18 - - - 10 - - -	3 - - -	<u>13</u> - - -	9:45 P.M.	
" 19 - - - 1 - - -	14 - - -	<u>15</u> - - -	10:45 "	
" 20 - - - 0 - - -	.. - - -	<u>0</u> - - -	11:45 "	

BATTLE CREEK.

MAPLE & LAKE LINE.

Dec. 1st, 1910.

Run Commencing at 5:30 A.M.

Seating Capacity of Cars - - - - - 39
 Maximum Capacity of Cars- - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 0 - - -	17 - - -	<u>17</u> - - -	5:30 A.M.	
" 2 - - - 24 - - -	20 - - -	<u>44</u>		
" 3 - - - 14 - - -	38 - - -	<u>52</u>		
" 4 - - - 11 - - -	10 - - -	<u>21</u>		
" 5 - - - 11 - - -	12 - - -	<u>23</u>		
" 6 - - - 9 - - -	9 - - -	<u>18</u> - - -	10:15 A.M.	
" 7 - - - 10 - - -	21 - - -	<u>31</u>		
" 8 - - - 10 - - -	17 - - -	<u>27</u>		
" 9 - - - 16 - - -	18 - - -	<u>34</u>		
" 10 - - - 21 - - -	21 - - -	<u>42</u>		
" 11 - - - 0 - - -	6 - - -	<u>6</u> - - -	3:10 P.M.	
" 12 - - - 8 - - -	24 - - -	<u>32</u>		
" 13 - - - 33 - - -	36 - - -	<u>69</u>		
" 14 - - - 37 - - -	15 - - -	<u>52</u>		
" 15 - - - 20 - - -	27 - - -	<u>47</u>		
" 16 - - - 31 - - -	28 - - -	<u>59</u>		
" 17 - - - 4 - - -	4 - - -	<u>8</u> - - -	8:45 "	
" 18 - - - 12 - - -	14 - - -	<u>26</u>		
" 19 - - - 37 - - -	7 - - -	<u>44</u>		
" 20 - - - 11 - - -	0 - - -	<u>11</u> - - -	11:45 "	

BATTLE CREEK

MAPLE & LAKE LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A.M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per }
 round trip in order to meet running expenses) - - - 19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 1 - - -	18 - - -	19		
" 2 - - - 18 - - -	20 - - -	38		
" 3 - - - 12 - - -	25 - - -	37		
" 4 - - - 16 - - -	9 - - -	25		
" 5 - - - 4 - - -	9 - - -	13 - - -	9:00 A.M.	
" 6 - - - 8 - - -	5 - - -	13 - - -	10:00 "	
" 7 - - - 16 - - -	10 - - -	26		
" 8 - - - 29 - - -	9 - - -	38		
" 9 - - - 7 - - -	24 - - -	31		
" 10 - - - 6 - - -	12 - - -	18		
" 11 - - - . - - -	7 - - -	7 - - -	2:45 P.M.	
" 12 - - - 14 - - -	18 - - -	32		
" 13 - - - 21 - - -	40 - - -	61		
" 14 - - - 39 - - -	33 - - -	72		
" 15 - - - 37 - - -	11 - - -	48		
" 16 - - - 11 - - -	28 - - -	39		
" 17 - - - 12 - - -	6 - - -	18		
" 18 - - - 20 - - -	4 - - -	24		
" 19 - - - 16 - - -	8 - - -	24		
" 20 - - - 3 - - -	3 - - -	6 - - -	11:00 P.M.	

BATTLE CREEK.

MAPLE & LAKE LINE.

Dec. 1st, 1910.

Run Commencing at 6:00 A.M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 19

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	21 - - -	22 - - -	43	
" 2 - - -	11 - - -	20 - - -	31	
" 3 - - -	16 - - -	14 - - -	30	
" 4 - - -	17 - - -	8 - - -	25	
" 5 - - -	9 - - -	10 - - -	19	
" 6 - - -	12 - - -	22 - - -	34	
" 7 - - -	16 - - -	16 - - -	32	
" 8 - - -	18 - - -	21 - - -	39	
" 9 - - -	19 - - -	4 - - -	23	
" 10 - - -	12 - - -	16 - - -	28	
" 11 - - -	16 - - -	36 - - -	52	
" 12 - - -	34 - - -	31 - - -	65	
" 13 - - -	39 - - -	37 - - -	76	
" 14 - - -	12 - - -	19 - - -	31	
" 15 - - -	35 - - -	17 - - -	52	
" 16 - - -	10 - - -	12 - - -	22	
" 17 - - -	4 - - -	54 - - -	58	
" 18 - - -	11 - - -	7 - - -	18	10:30 P.M.
" 19 - - -	1 - - -	.. - - -	<u>1</u>	11:30 "

BATTLE CREEK.

MAIN STREET LINE

Number of Cars in operation - - - - - 3 and 4 cars.

Headway - - - - - 15 minutes until 11:15 A. M. and after
8:15 P.M.

12 minute headway from 11:15 to 8:15 P.M.

During time of 15 minute headway every
third car goes to Urbandale.

During time of 12 minute headway every
fourth car goes to Urbandale.

All other cars turn at the Country Club.

Extra service on Saturdays.

Round Trip Time - 45 minutes on the 15 minute headway.

48 " " " 12 " "

Car Miles Per	) To Country Club - - - - -	6.30
Round Trip	) - " Urbandale - - - - -	8:24
	) 1 Tripper except Saturday & Sunday	4.00

BATTLE CREEK.

MAIN STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:35 A.M.

Seating Capacity of Car - - - - - 30

Maximum Capacity of Car - - - - - 70

Number of revenue passengers necessary per) 21 on Urbandale
 round trip in order to meet running expenses) 16 on other cars

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - -	1 - - -	18 - - -	<u>19</u> - - -	5:35 A.M.
" 2 - - -	4 - - -	15 - - -	<u>19</u>	
" 3 - - -	11 - - -	29 - - -	<u>40</u>	
" 4 - - -	18 - - -	13 - - -	<u>31</u>	
" 5 - - -	8 - - -	9 - - -	<u>17</u> - - -	8:30 "
" 6 - - -	8 - - -	8 - - -	<u>16</u>	
" 7 - - -	14 - - -	14 - - -	<u>28</u>	
" 8 - - -	4 - - -	11 - - -	<u>15</u> - - -	10:45 "
" 9 - - -	14 - - -	18 - - -	<u>32</u>	
" 10 - - -	7 - - -	12 - - -	<u>19</u>	
" 11 - - -	10 - - -	14 - - -	<u>24</u>	
" 12 - - -	14 - - -	18 - - -	<u>32</u>	
" 13 - - -	. - - -	7 - - -	<u>7</u> - - -	2:40 P.M.
" 14 - - -	8 - - -	4 - - -	<u>12</u> - - -	3:36 "
" 15 - - -	10 - - -	15 - - -	<u>25</u>	
" 16 - - -	29 - - -	27 - - -	<u>56</u>	
" 17 - - -	40 - - -	11 - - -	<u>51</u> - - -	5:12 "
" 18 - - -	<u>24</u> - - -	7 - - -	<u>31</u>	
" 19 - - -	9 - - -	26 - - -	<u>35</u>	
" 20 - - -	16 - - -	6 - - -	<u>22</u>	
" 21 - - -	7 - - -	2 - - -	<u>9</u> - - -	8:15 "
" 22 - - -	17 - - -	5 - - -	<u>22</u>	
" 23 - - -	7 - - -	4 - - -	<u>11</u> - - -	9:45 "
" 24 - - -	11 - - -	15 - - -	<u>26</u>	
" 25 - - -	8 - - -	0 - - -	<u>8</u> - - -	11:15 "

BATTLE CREEK.

MAIN STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A.M.

Seating Capacity of Car - - - - - 30
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per) 21 on Urbandale
 round trip in order to meet running expenses) 16 " other cars

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - -	0 - - -	33 - - -	33	
" 2 - - -	16 - - -	18 - - -	34	
" 3 - - -	9 - - -	15 - - -	24	
" 4 - - -	10 - - -	14 - - -	24	
" 5 - - -	5 - - -	9 - - -	14	8:45 A.M.
" 6 - - -	26 - - -	13 - - -	39	
" 7 - - -	9 - - -	4 - - -	13	10:15 "
" 8 - - -	12 - - -	30 - - -	42	
" 9 - - -	15 - - -	15 - - -	30	
" 10 - - -	7 - - -	15 - - -	22	
" 11 - - -	15 - - -	30 - - -	45	
" 12 - - -	15 - - -	11 - - -	26	
" 13 - - -	.. - - -	2 - - -	2	2:55 P.M.
" 14 - - -	12 - - -	12 - - -	24	
" 15 - - -	30 - - -	29 - - -	59	
" 16 - - -	16 - - -	16 - - -	32	
" 17 - - -	22 - - -	30 - - -	52	
" 18 - - -	64 - - -	23 - - -	87	6:12 "
" 19 - - -	26 - - -	21 - - -	47	
" 20 - - -	17 - - -	9 - - -	26	
" 21 - - -	21 - - -	18 - - -	39	
" 22 - - -	18 - - -	4 - - -	22	
" 23 - - -	15 - - -	25 - - -	40	
" 24 - - -	11 - - -	13 - - -	24	
" 25 - - -	11 - - -	0 - - -	11	11:30 "

BATTLE CREEK.

MAIN STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A.M.

Seating Capacity of Car - - - - - 30

Maximum Capacity of Car - - - - - 70

Number of revenue passengers necessary per } 21 on Urbandale
 round trip in order to meet running expenses) 16 on other cars

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1	0	0	0	5:45 A.M.
" 2	13	<u>51</u>	64	6:00 "
" 3	15	4	19	
" 4	13	23	35	
" 5	14	13	27	
" 6	9	3	<u>12</u>	9:00 "
" 7	16	8	<u>24</u>	
" 8	7	16	23	
" 9	13	12	25	
" 10	12	7	19	
" 11	30	17	47	
" 12	15	12	27	
" 13	7	3	<u>10</u>	2:24 P.M.
" 14	.	3	<u>3</u>	3:12 "
" 15	18	16	34	
" 16	6	16	22	
" 17	9	12	21	
" 18	23	34	57	
" 19	14	8	22	
" 20	16	28	44	
" 21	19	7	26	
" 22	14	4	18	
" 23	16	5	21	
" 24	26	5	31	
" 25	8	4	<u>12</u>	11:22 "
" 26	0	0	<u>0</u>	12:00 "

BATTLE CREEK

MAIN STREET LINE.

Dec. 1st, 1910.

Run Commencing at 11:10 A.M.

Seating Capacity of Car - - - - - 30

Maximum Capacity of Car - - - - - 70

Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 18

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - -	0 - - -	0 - - -	0 - - -	11:10 A.M.
" 2 - - -	6 - - -	15 - - -	21	
" 3 - - -	25 - - -	9 - - -	34	
" 4 - - -	14 - - -	15 - - -	29	
" 5 - - -	13 - - -	12 - - -	24	
" 6 - - -	20 - - -	21 - - -	41	
" 7 - - -	14 - - -	8 - - -	22	
" 8 - - -	31 - - -	11 - - -	42	
" 9 - - -	<u>38</u> - - -	18 - - -	56 - - -	5:00 P.M.
" 10 - - -	<u>22</u> - - -	21 - - -	43	
" 11 - - -	13 - - -	27 - - -	40	
" 12 - - -	14 - - -	7 - - -	21	

BATTLE CREEK.

UPTON & GARFIELD LINE

No. of Cars in Operation - - - - - 3
 Headway - - - - - 15 minutes
 Time for Round Trip - - - - - 45 "
 Car miles per round trip - - - - - 7.14 miles.
 (1 Tripper at 5:37 P.M., except Sundays;)
 Car miles per round trip - - - - - 5.28)

BATTLE CREEK.

GARFIELD & UPTON LINE

Dec. 1st, 1910

Run Commencing at 5:35 A. M.

Seating Capacity of Car - - - - -	28
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	18

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	0	0	0	5:35 A.M.
" 2	8	6	<u>14</u>	5:52 "
" 3	11	6	<u>17</u>	6:37 "
" 4	21	20	<u>41</u>	
" 5	4	6	<u>10</u>	8:07 "
" 6	4	8	<u>12</u>	8:50 "
" 7	7	4	<u>11</u>	9:37 "
" 8	7	5	<u>12</u>	10:22 "
" 9	8	7	<u>15</u>	11:07 "
" 10	<u>31</u>	6	<u>37</u>	11:52 "
" 11	<u>10</u>	22	32	
" 12	14	9	23	
" 13	7	7	<u>14</u>	2:07 P.M.
" 14	0	7	<u>7</u>	
" 15	5	4	<u>9</u>	2:52 "
" 16	10	7	<u>17</u>	2:37 "
" 17	24	22	<u>46</u>	
" 18	18	19	37	
" 19	11	10	21	
" 20	14	13	27	
" 21	23	8	31	
" 22	10	10	20	
" 23	8	8	<u>16</u>	9:07 "
" 24	3	57	<u>60</u>	
" 25	4	12	<u>16</u>	10:45 "
" 26	0	0	<u>0</u>	11:37 "

BATTLE CREEK

GARFIELD & UPTON LINE.

Dec. 1st, 1910.

Run Commencing at 5:35 A.M.

Seating Capacity of Car - - - - -	30
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	18

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	0 - - -	0 - - -	0 - - -	5:35 A.M.
" 2 - - -	2 - - -	<u>43</u> - - -	<u>45</u> - - -	
" 3 - - -	15 - - -	5 - - -	20 - - -	
" 4 - - -	7 - - -	16 - - -	23 - - -	
" 5 - - -	13 - - -	5 - - -	18 - - -	
" 6 - - -	9 - - -	7 - - -	<u>16</u> - - -	8:37 "
" 7 - - -	6 - - -	2 - - -	<u>8</u> - - -	9:22 "
" 8 - - -	10 - - -	5 - - -	<u>15</u> - - -	10:00 "
" 9 - - -	8 - - -	10 - - -	<u>18</u> - - -	
" 10 - - -	16 - - -	11 - - -	27 - - -	
" 11 - - -	7 - - -	12 - - -	19 - - -	
" 12 - - -	12 - - -	13 - - -	25 - - -	
" 13 - - -	21 - - -	7 - - -	28 - - -	
" 14 - - -	12 - - -	.. - - -	<u>12</u> - - -	2:37 P.M.
" 15 - - -	2 - - -	14 - - -	<u>16</u> - - -	2:55 P
" 16 - - -	10 - - -	9 - - -	<u>19</u> - - -	
" 17 - - -	22 - - -	18 - - -	40 - - -	
" 18 - - -	26 - - -	20 - - -	46 - - -	
" 19 - - -	33 - - -	19 - - -	52 - - -	5:52 "
" 20 - - -	<u>11</u> - - -	12 - - -	23 - - -	
" 21 - - -	11 - - -	19 - - -	30 - - -	
" 22 - - -	7 - - -	10 - - -	<u>17</u> - - -	8:07 "
" 23 - - -	7 - - -	17 - - -	<u>24</u> - - -	
" 24 - - -	7 - - -	7 - - -	<u>14</u> - - -	9:37 "
" 25 - - -	15 - - -	8 - - -	<u>23</u> - - -	
" 26 - - -	5 - - -	0 - - -	<u>5</u> - - -	11:22 "

BATTLE CREEK.

GARFIELD & UPTON LINE.

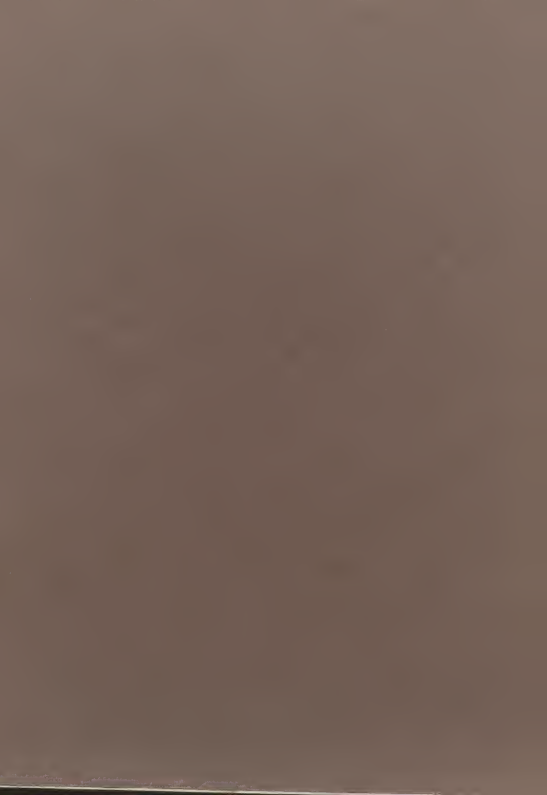
Dec. 1st, 1910.

Run Commencing at 5:35 A.M.

Seating Capacity of Car - - - - -	30
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	18

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 0 - - -	6 - - -	6 - - -	5:35 A.M.	
" 2 - - - 21 - - -	35 - - -	56		
" 3 - - - 7 - - -	5 - - -	12	6:52 "	
" 4 - - - 17 - - -	13 - - -	30		
" 5 - - - 5 - - -	9 - - -	14	8:22 "	
" 6 - - - 5 - - -	1 - - -	6	8:07 "	
" 7 - - - 11 - - -	6 - - -	17	9:50 "	
" 8 - - - 6 - - -	9 - - -	15	10:37 "	
" 9 - - - 10 - - -	6 - - -	16	11:22 "	
" 10 - - - 13 - - -	12 - - -	25		
" 11 - - - 12 - - -	11 - - -	23		
" 12 - - - 5 - - -	8 - - -	13	1:37 P.M.	
" 13 - - - 8 - - -	10 - - -	18		
" 14 - - - 0 - - -	16 - - -	16	2:40 "	
" 15 - - - 10 - - -	17 - - -	27		
" 16 - - - 8 - - -	18 - - -	26		
" 17 - - - 13 - - -	20 - - -	33		
" 18 - - - 84 - - -	29 - - -	113	5:37 "	
" 19 - - - 10 - - -	11 - - -	21		
" 20 - - - 20 - - -	10 - - -	30		
" 21 - - - 17 - - -	6 - - -	23		
" 22 - - - 6 - - -	14 - - -	20		
" 23 - - - 7 - - -	10 - - -	17	9:22 "	
" 24 - - - 2 - - -	7 - - -	9	10:07 "	
" 25 - - - 7 - - -	12 - - -	19		
" 26 - - - 0 - - -	0 - - -	0	11:52 "	



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INDEX.

COMMENTS:

Kalamazoo, - - - - -	84
Asylum & Portage Ave. Line - -	87
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Main Street - - - - - " - - -	90
Patterson Street - - - " - - -	91

TABLES:

Unprofitability - - - - -	92
Impunctuality - - - - -	93
Over-Crowding - - - - -	97
Asylum & Portage Line - - - -	98
Washington & West " - - - -	104
Rose & North - - - " - - - -	110
Main Street - - - - - " - - - -	116
Lincoln & Seminary " - - - -	120
Patterson Street - " - - - -	122

KALAMAZOO.

Kalamazoo has the distinction of being the largest, the most stable, and the most prosperous of the cities reached by the M. U. R.

The bank clearings of \$1800.00 per capita (as against \$680.00 in Jackson, and \$775.00 in Lansing) indicate an exceptionally active community, while the stable nature of its chief industry (the manufacture of paper) gives promise of a continuance of favourable conditions.

Reference to table on page 144 indicates a grouping of Kalamazoo with Jackson (rather than with Battle Creek and Lansing) from the view point of its street railway conditions.

The average earnings of 19¢ per car mile are comparatively high, while the operating expenses, at 11.22¢, reach a low figure. Thirty percent of the entire M. U. R. earnings are derived from Kalamazoo, while its Washington and West Street Line produces the highest gross receipts of any on the System.

Notwithstanding this favourable showing, an analysis demonstrates that opportunities for further success await development.

For instance, the figure of 121 revenue rides per capita is small as compared with 137 at Battle Creek. Could the latter figure (which is very low) be attained

at Kalamazoo an added income of \$28,000 per year would result. Assuming a 50% operating ratio this amount would pay 6% interest on nearly \$250,000.

The key to the reluctance of the people to ride can no doubt be found in the high percentages of impunctuality which, at 36%, is excessive. The table on p. 88 is instructive on the latter point and serves to indicate desirable points of first attack.

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THE ASYLUM & PORTAGE AVE. LINE, although returning a net profit of about \$25.00 daily, probably offers one of the best fields for manipulation.

This Line resembles greatly, in its characteristics, the Francis Street Line of Jackson, and the latter, as was stated, has been profitably experimented with; both Lines reach a recreation park after traversing from 1-1/4 to 1-1/2 miles of nearly barren territory. The pleasurable feature of the rides being reduced to almost zero during the winter, a reduced service in the unprofitable zone becomes advisable during that season.

A reduction of about 3 car miles per round trip (no doubt without appreciably reducing the earnings) is feasible for the greater part of the day. Assuming a 1 hour service to Oakwood Park (the end of the line) this would amount to a reduction of 172 car miles per day which, in 6 months, would mean a saving in operation of \$3,470.00.

Passing by the LINCOLN & SEMINARY LINE, on which the unsatisfactory conditions can probably not be remedied, the ROSE & NORTH STREET, with an impunctuality factor of 73%, suggests a field for added efficiency and, with attention in this direction, might soon develop an increased service over and above the 12 to 15

KALAMAZOO.

minutes headway now in force. A net profit of about \$50.00 per day is derived from these tracks, a figure indicating a fertile area of influence.

THE MAIN STREET LINE is another which presents a high degree of impunctuality and, although the source of about \$40.00 per day net profit, much better results can no doubt be obtained and traffic developed, later, to a point justifying an increased service beyond that indicated by the present 15 minute headway. The 6-1/2% of crowded trips may reasonably be expected to be considerably increased.

The small number of car miles operated per day on the PATTERSON STREET LINE does not present an opportunity for any very greatly increased income. Some not to be despised additional net profits could, however, probably be gathered as the result of a campaign against the high impunctuality factor of 40%.

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Dec. 1st, 1910..

LINE.	NO. OF REVENUE PAS- SENGERS NECESSARY PER ROUND TRIP IN ORDER TO MEET RUN- NING EXPENSES.	% OF TIME CARS WERE OPERATED AT A LOSS ON DEC. 1st, 1910.
Asylum & Portage - - -	29 - - - - -	39%
Washington & West - - -	20 - - - - -	10%
Rose & North - - - - -	16 - - - - -	20%
Main Street - - - - -	14 - - - - -	12%
Lincoln & Seminary - - -	20 - - - - -	53%
Patterson Street - - -	12 - - - - -	19%

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Table Indicating Distribution of Impunctuality of Service.

PERCENT OF TIME CARS WERE IMPUNCTUAL.

LINE	DEC.1st	DEC.2nd	DEC.7th	ALL DAYS.
Asylum & Portage -	35% - - -	20% - - -	14% - - -	23%
Washington & West-	24% - - -	20% - - -	21% - - -	22%
Rose & North - - -	77% - - -	67% - - -	76% - - -	73%
Main Street - - -	45% - - -	34% - - -	15% - - -	32%
Seminary - - - -	16% - - -	0% - - -	16% - - -	11%
Patterson - - - -	34% - - -	51% - - -	34% - - -	40%
<hr/>				
All Cars - All lines, 41%	- - -	35% - - -	32% - - -	<u>36%</u>
<hr/> <hr/>				

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Table Showing Details of Irregularity on DEC. 1ST, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Asylum & Portage - - -	5 - - -	6 - - -	10 - - -	5
Washington & West - - -	4 - - -	9 - - -	9 - - -	3
Rose & North - - - -	17 - - -	18 - - -	21 - - -	15
Main Street- - - - -	1 - - -	17 - - -	12 - - -	3
Lincoln & Seminary - - -	1 - - -	1 - - -	3 - - -	2
Patterson St. - - - -	2 - - -	12 - - -	5 - - -	2

KALAMAZOO.

Table Showing Details of Irregularity on Dec. 2nd, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Asylum & Portage - -	2 - - -	6 - - -	1 - - -	8
Washington & West -	3 - - -	11 - - -	4 - - -	4
Rose & North - - -	18 - - -	35 - - -	7 - - -	7
Main Street - - -	1 - - -	9 - - -	11 - - -	4
Lincoln & Seminary -	0 - - -	0 - - -	0 - - -	0
Patterson - - - -	18 - - -	12 - - -	3 - - -	1
All lines - - - -	42 - - -	73 - - -	26 - - -	24

KALAMAZOO.

Table Showing DETAILS of IRREGULARITY on DEC. 7th, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Asylum & Portage - -	3 - - -	7 - - -	0 - - -	1
Washington & West - -	6 - - -	14 - - -	3 - - -	1
Rose & North - - -	15 - - -	24 - - -	17 - - -	9
Main Street - - - -	4 - - -	5 - - -	1 - - -	1
Seminary - - - - -	0 - - -	0 - - -	3 - - -	3
Patterson - - - - -	8 - - -	8 - - -	4 - - -	1
<hr/>				
All lines - - - - -	36 - - -	58 - - -	28 - - -	16
<hr/> <hr/>				

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TABLE INDICATING DEGREE OF OVER-CROWDING
ON THE VARIOUS LINES

LINE:	NUMBER OF TIMES SEATING CAPACITY OF CAR WAS EX- CEEDED ON A SEMI- ROUND TRIP.	% OF TOTAL SEMI TRIPS.
Asylum & Portage - - - -	16 - - - - -	10%
Washington & West - - - -	27 - - - - -	12%
Rose & North - - - - -	15 - - - - -	7.5%
Main Street - - - - -	10 - - - - -	6.5%
Lincoln & Seminary - - - -	1 - - - - -	1.3%
Patterson - - - - -	0 - - - - -	0 %
<hr/>		
All lines - - - - -	69 - - - - -	<u>7.0%</u>
<hr/> <hr/>		

KALAMAZOO.

ASYLUM & PORTAGE STREET LINE.

Cars in operation - - - - - 5

Headway - - - - - 15 minutes

Round Trip Time - - - - - 75 "

Car miles per round trip = 11.60

KALAMAZOO.

ASYLUM & PORTAGE STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:15 A.M.

Seating Capacity of Car - - - - -	32
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	29

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 3 - - -	30 - - -	33		
" 2 - - - 57 - - -	10 - - -	67 - - -	6:30 A.M.	
" 3 - - - 29 - - -	21 - - -	50		
" 4 - - - 15 - - -	13 - - -	28 - - -	9:00 "	
" 5 - - - 15 - - -	19 - - -	34		
" 6 - - - 16 - - -	19 - - -	35		
" 7 - - - 25 - - -	24 - - -	49		
" 8 - - - 14 - - -	.. - - -	14 - - -	2:00 P.M.	
" 9 - - - 7 - - -	25 - - -	32		
" 10 - - - 13 - - -	35 - - -	48		
" 11 - - - 25 - - -	43 - - -	68 - - -	4:30 "	
" 12 - - - 40 - - -	17 - - -	57 - - -	5:52 "	
" 13 - - - 47 - - -	19 - - -	66 - - -	7:00 "	
" 14 - - - 13 - - -	14 - - -	27 - - -	8:15 "	
" 15 - - - 13 - - -	.. - - -	26 - - -		
" 16 - - - .. - - -	13 - - -	26 - - -		
" 17 - - - 4 - - -	17 - - -	21 - - -	10:15 "	
" 18 - - - .. - - -	.. - - -	0 - - -	11:35 "	

KALAMAZOO.

ASYLUM & PORTAGE STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:30 A. M.

Seating Capacity of Car - - - - -	32
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	29

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - - 3 - - -	39 - - -	42		
" 2 - - - 34 - - -	20 - - -	54 - - -	6:45 A.M.	
" 3 - - - 23 - - -	8 - - -	31		
" 4 - - - 7 - - -	15 - - -	22 - - -	9:10 "	
" 5 - - - 11 - - -	16 - - -	27 - - -	10:30 "	
" 6 - - - 23 - - -	16 - - -	39		
" 7 - - - 30 - - -	28 - - -	58		
" 8 - - - 13 - - -	.. - - -	13 - - -	2:15 P.M.	
" 9 - - - 2 - - -	27 - - -	29		
" 10 - - - 27 - - -	41 - - -	68		
" 11 - - - 27 - - -	39 - - -	66 - - -	4:45 "	
" 12 - - - 31 - - -	20 - - -	51		
" 13 - - - 25 - - -	19 - - -	44		
" 14 - - - 9 - - -	13 - - -	22 - - -	8:30 "	
" 15 - - - 8 - - -	.. - - -	8 - - -	9:45 "	
" 16 - - - 20 - - -	19 - - -	39		
" 17 - - - 8 - - -	.. - - -	8 - - -	11:15 "	

KALAMAZOO.

ASYLUM & PORTAGE STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A. M.

Seating Capacity of Car - - - - -	32
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per round trip in order to meet running expenses)	29

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - -	0 - - -	16 - - -	<u>16</u> - - -	5:45 A.M.
" 2 - - -	<u>42</u> - - -	30 - - -	<u>72</u> - - -	7:00 "
" 3 - - -	<u>29</u> - - -	12 - - -	<u>41</u> - - -	
" 4 - - -	10 - - -	11 - - -	<u>21</u> - - -	9:30 "
" 5 - - -	11 - - -	19 - - -	<u>30</u> - - -	
" 6 - - -	29 - - -	31 - - -	<u>60</u> - - -	
" 7 - - -	24 - - -	26 - - -	<u>50</u> - - -	
" 8 - - -	17 - - -	.. - - -	<u>17</u> - - -	2:30 P.M.
" 9 - - -	6 - - -	21 - - -	<u>27</u> - - -	2:45 "
" 10 - - -	<u>26</u> - - -	61 - - -	<u>87</u> - - -	
" 11 - - -	30 - - -	24 - - -	<u>54</u> - - -	
" 12 - - -	13 - - -	10 - - -	<u>23</u> - - -	6:18 "
" 13 - - -	<u>42</u> - - -	11 - - -	<u>53</u> - - -	7:34 "
" 14 - - -	<u>8</u> - - -	24 - - -	<u>32</u> - - -	
" 15 - - -	14 - - -	8 - - -	<u>22</u> - - -	10:00 "
" 16 - - -	6 - - -	0 - - -	<u>6</u> - - -	11:19 "
" 17 - - -	.. - - -	.. - - -		

KALAMAZOO.

ASYLUM & PORTAGE STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A. M.

Seating Capacity of Car - - - - - 32
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses)- 29

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	30	22	52	
" 2	25	15	40	
" 3	14	6	20	8:30 A.M.
" 4	10	12	22	8:45 "
" 5	31	27	58	
" 6	7	25	32	
" 7	27	28	55	
" 8	9	1	9	2:45 P.M.
" 9	9	25	34	
" 10	36	42	78	4:10 "
" 11	45	50	95	5:15 "
" 12	9	15	24	6:32 "
" 13	15	21	36	
" 14	6	1	7	9:00 "
" 15	0	13	13	9:53 "
" 16	0	2	2	10:45 "

KALAMAZOO.

ASYLUM & PORTAGE STREET LINE.

Dec. 1st, 1910.

Run Commencing at 6:10 A. M.

Seating Capacity of Car - - - - -	32
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	29

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	32 - - -	15 - - -	47	
" 2 - - -	46 - - -	24 - - -	70 - - -	7:30 A.M.
" 3 - - -	15 - - -	13 - - -	28 - - -	8:45 "
" 4 - - -	10 - - -	11 - - -	21 - - -	10:00 "
" 5 - - -	13 - - -	24 - - -	37	
" 6 - - -	14 - - -	29 - - -	43	
" 7 - - -	26 - - -	16 - - -	42	
" 8 - - -	8 - - -	.. - - -	8 - - -	3:00 P.M.
" 9 - - -	7 - - -	32 - - -	39	
" 10 - - -	38 - - -	52 - - -	90 - - -	4:15 "
" 11 - - -	34 - - -	27 - - -	61 - - -	5:30 "
" 12 - - -	31 - - -	.. - - -	31	
" 13 - - -	15 - - -	.. - - -	15 - - -	7:23 "
" 14 - - -	18 - - -	21 - - -	39	
" 15 - - -	19 - - -	.. - - -	19 - - -	9:15 "
" 16 - - -	0 - - -	59 - - -	59	
" 17 - - -	4 - - -	.. - - -	4 - - -	11:00 "

KALAMAZOO

WASHINGTON & WEST STREET LINE.

Cars in operation - - - - - 5

Headway - - - - - 10 minutes

Round Trip Time - - - - - 50 "

Evenings between 5:30 and 6:30 tripper as required.

Car miles per round trip = 7.80

KALAMAZOO

WASHINGTON & WEST STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:35 A.M.

Seating Capacity of Car - - - - - 39

Maximum Capacity of Car - - - - - 110

Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 20

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 1 - - -	52 - - -	53		
" 2 - - - 29 - - -	23 - - -	52		
" 3 - - - 29 - - -	30 - - -	59		
" 4 - - - 14 - - -	7 - - -	21		
" 5 - - - 17 - - -	7 - - -	24		
" 6 - - - 18 - - -	19 - - -	37		
" 7 - - - 5 - - -	17 - - -	22		
" 8 - - - 21 - - -	18 - - -	39		
" 9 - - - 19 - - -	29 - - -	48		
" 10 - - - 18 - - -	27 - - -	45		
" 11 - - - 19 - - -	.. - - -	<u>19</u> - - -	1:55 P.M.	
" 12 - - - 5 - - -	20 - - -	<u>25</u>		
" 13 - - - 21 - - -	24 - - -	45		
" 14 - - - 17 - - -	31 - - -	48		
" 15 - - - 50 - - -	63 - - -	113 - - -	4:25 "	
" 16 - - - <u>23</u> - - -	15 - - -	108 - - -	5:30 "	
" 17 - - - 24 - - -	9 - - -	33		
" 18 - - - 16 - - -	17 - - -	33		
" 19 - - - 19 - - -	28 - - -	47		
" 20 - - - 17 - - -	12 - - -	29		
" 21 - - - 8 - - -	51 - - -	59		
" 22 - - - .. - - -	.. - - -	<u>0</u> - - -	11:05 "	

KALAMAZOO.

WASHINGTON & WEST STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:45.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 20

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 1 - - -	62 - - -	63		
" 2 - - - 20 - - -	35 - - -	55		
" 3 - - - 22 - - -	25 - - -	47		
" 4 - - - 18 - - -	17 - - -	35		
" 5 - - - 9 - - -	13 - - -	22		
" 6 - - - 22 - - -	19 - - -	41		
" 7 - - - 16 - - -	18 - - -	34		
" 8 - - - 30 - - -	23 - - -	53		
" 9 - - - 40 - - -	38 - - -	78		
" 10 - - - 39 - - -	32 - - -	71		
" 11 - - - 8 - - -	.. - - -	8	- - -	2:05 P.M.
" 12 - - - 7 - - -	28 - - -	35		
" 13 - - - 37 - - -	18 - - -	55		
" 14 - - - 18 - - -	27 - - -	45		
" 15 - - - <u>41</u> - - -	17 - - -	58	- - -	4:35 "
" 16 - - - <u>64</u> - - -	34 - - -	98	- - -	5:29 "
" 17 - - - <u>12</u> - - -	26 - - -	38		
" 18 - - - 28 - - -	15 - - -	43		
" 19 - - - 37 - - -	10 - - -	47		
" 20 - - - 6 - - -	20 - - -	26		
" 21 - - - 5 - - -	9 - - -	<u>14</u>	- - -	9:35 "
" 22 - - - 17 - - -	9 - - -	<u>26</u>		
" 23 - - - .. - - -	.. - - -	<u>0</u>	- - -	11:15 "

KALAMAZOO.

WASHINGTON & WEST STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:55 A.M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - 20

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	22 - - -	<u>48</u> - - -	70 - - -	5:55 A.M.
" 2 - - -	39 - - -	<u>41</u> - - -	80 - - -	
" 3 - - -	17 - - -	25 - - -	52 - - -	
" 4 - - -	7 - - -	19 - - -	26 - - -	
" 5 - - -	10 - - -	25 - - -	35 - - -	
" 6 - - -	5 - - -	7 - - -	<u>12</u> - - -	10:05 "
" 7 - - -	14 - - -	22 - - -	36 - - -	
" 8 - - -	34 - - -	17 - - -	51 - - -	
" 9 - - -	25 - - -	18 - - -	43 - - -	
" 10 - - -	17 - - -	33 - - -	50 - - -	
" 11 - - -	34 - - -	.. - - -	24 - - -	
" 12 - - -	4 - - -	22 - - -	26 - - -	
" 13 - - -	21 - - -	15 - - -	36 - - -	
" 14 - - -	31 - - -	30 - - -	61 - - -	
" 15 - - -	<u>46</u> - - -	36 - - -	82 - - -	
" 16 - - -	<u>52</u> - - -	<u>41</u> - - -	93 - - -	
" 17 - - -	22 - - -	<u>22</u> - - -	44 - - -	
" 18 - - -	<u>39</u> - - -	<u>26</u> - - -	65 - - -	
" 19 - - -	<u>14</u> - - -	14 - - -	28 - - -	
" 20 - - -	25 - - -	7 - - -	32 - - -	
" 21 - - -	12 - - -	10 - - -	22 - - -	
" 22 - - -	<u>66</u> - - -	12 - - -	78 - - -	

KALAMAZOO.

WASHINGTON & WEST STREET LINE.

Dec. 1st, 1910.

Run Commencing at 6:05 A. M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 20

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	22 - - -	67 - - -	89 - - -	6:05 A.M.
" 2 - - -	17 - - -	17 - - -	34 - - -	
" 3 - - -	56 - - -	12 - - -	68 - - -	7:45 "
" 4 - - -	16 - - -	14 - - -	30 - - -	
" 5 - - -	15 - - -	13 - - -	28 - - -	
" 6 - - -	16 - - -	9 - - -	25 - - -	
" 7 - - -	18 - - -	32 - - -	50 - - -	
" 8 - - -	32 - - -	24 - - -	56 - - -	
" 9 - - -	38 - - -	32 - - -	70 - - -	
" 10 - - -	23 - - -	30 - - -	53 - - -	
" 11 - - -	20 - - -	.. - - -	20 - - -	
" 12 - - -	8 - - -	14 - - -	22 - - -	
" 13 - - -	22 - - -	22 - - -	44 - - -	
" 14 - - -	36 - - -	45 - - -	81 - - -	4:05 P.M.
" 15 - - -	69 - - -	23 - - -	92 - - -	
" 16 - - -	66 - - -	18 - - -	84 - - -	5:50 "
" 17 - - -	14 - - -	15 - - -	29 - - -	
" 18 - - -	44 - - -	40 - - -	84 - - -	7:33 "
" 19 - - -	11 - - -	12 - - -	23 - - -	
" 20 - - -	9 - - -	14 - - -	23 - - -	
" 21 - - -	18 - - -	4 - - -	22 - - -	
" 22 - - -	10 - - -	6 - - -	16 - - -	-10:45 "
" 23 - - -	.. - - -	.. - - -	0 - - -	-11:35 "

KALAMAZOO

WASHINGTON & WEST STREET LINE.

Dec. 1st, 1910.

Run Commencing at 6:15 A. M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 20

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	<u>43</u>	37	80	6:15 A.M.
" 2 - - -	9	15	24	
" 3 - - -	14	13	27	
" 4 - - -	20	11	31	
" 5 - - -	7	11	<u>18</u>	9:35 "
" 6 - - -	12	18	<u>30</u>	
" 7 - - -	<u>41</u>	34	75	-11:25 "
" 8 - - -	27	17	44	
" 9 - - -	19	25	44	
" 10 - - -	36	<u>43</u>	79	1:45 P.M.
" 11 - - -	10	..	<u>10</u>	2:35 "
" 12 - - -	4	27	<u>31</u>	
" 13 - - -	31	26	57	
" 14 - - -	<u>48</u>	<u>47</u>	95	4:15 "
" 15 - - -	<u>65</u>	<u>63</u>	128	5:10 "
" 16 - - -	<u>42</u>	<u>12</u>	54	
" 17 - - -	<u>44</u>	34	78	6:55 "
" 18 - - -	20	14	34	
" 19 - - -	18	9	27	
" 20 - - -	9	21	30	
" 21 - - -	13	9	22	
" 22 - - -	14	3	<u>17</u>	-10:55
" 23 - - -	..	..

KALAMAZOO.

ROSE & NORTH STREET LINE.

ORDINARY SERVICE.

Number of cars in operation - - - - -	-4-
Headway - - - - -	12 minutes
Round Trip Time - - - - -	48 "

EXTRAORDINARY SERVICE.

Commencing at about 11:30 A.M.

Number of Cars in operation - - - - -	5
Headway - - - - -	10 minutes
Round Trip Time - - - - -	50 "

Car miles per round trip = 6.30

KALAMAZOO.

ROSE & NORTH STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:35 A.M.

Seating Capacity of Car - - - - -	30
Maximum Capacity of Car - - - - -	65
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	16

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - -	3 - - -	<u>55</u> - - -	58 - - -	5:35 A.M.
" 2 - - -	<u>36</u> - - -	<u>12</u> - - -	48 - - -	6:30
" 3 - - -	9 - - -	14 - - -	23	
" 4 - - -	11 - - -	7 - - -	18	
" 5 - - -	7 - - -	6 - - -	<u>13</u> - - -	9:00 "
" 6 - - -	12 - - -	7 - - -	<u>19</u>	
" 7 - - -	12 - - -	12 - - -	24	
" 8 - - -	28 - - -	11 - - -	39	
" 9 - - -	11 - - -	22 - - -	33	
" 10 - - -	19 - - -	13 - - -	32	
" 11 - - -	6 - - -	.. - - -	6 - - -	2:10 P.M.
" 12 - - -	7 - - -	14 - - -	<u>21</u>	
" 13 - - -	16 - - -	21 - - -	37	
" 14 - - -	<u>39</u> - - -	<u>36</u> - - -	75 - - -	4:02 "
" 15 - - -	<u>42</u> - - -	<u>26</u> - - -	68 - - -	5:00 "
" 16 - - -	<u>23</u> - - -	14 - - -	37	
" 17 - - -	19 - - -	21 - - -	40	
" 18 - - -	10 - - -	15 - - -	25	
" 19 - - -	7 - - -	25 - - -	32	
" 20 - - -	21 - - -	21 - - -	42	
" 21 - - -	9 - - -	3 - - -	<u>12</u> - - -	10:51 "

KALAMAZOO.

ROSE & NORTH STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:35 A.M.

Seating Capacity of Car - - - - - 30
 Maximum Capacity of Car - - - - - 65
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 16

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 5 - - -	5	..	5	5:35A.M.
" 2 - - - 22 - - -	22	26	48	
" 3 - - - 18 - - -	18	16	34	
" 4 - - - 21 - - -	21	12	33	
" 5 - - - 11 - - -	11	6	17	
" 6 - - - 9 - - -	9	14	23	
" 7 - - - 6 - - -	6	8	14	10:13 "
" 8 - - - 8 - - -	8	13	21	
" 9 - - - 19 - - -	19	9	28	
" 10 - - - 23 - - -	23	27	50	
" 11 - - - 17 - - -	17	17	34	
" 12 - - - .. - - -	..	8	8	2:30 P.M.
" 13 - - - 13 - - -	13	20	33	
" 14 - - - 8 - - -	8	21	29	
" 15 - - - 48 - - -	48	27	75	
" 16 - - - 56 - - -	56	17	73	
" 17 - - - 20 - - -	20	24	44	
" 18 - - - 23 - - -	23	29	52	
" 19 - - - 12 - - -	12	12	24	
" 20 - - - 19 - - -	19	14	33	
" 21 - - - 13 - - -	13	14	27	
" 22 - - - 9 - - -	9	..	9	11:15 "

ROSE & NORTH STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A.M.

Seating Capacity of Car - - - - -	30
Maximum Capacity of Car - - - - -	65
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	16

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - -	6 - - -	25 - - -	31	
" 2 - - -	12 - - -	16 - - -	28	
" 3 - - -	20 - - -	17 - - -	37	
" 4 - - -	7 - - -	11 - - -	18	
" 5 - - -	12 - - -	16 - - -	28	
" 6 - - -	3 - - -	10 - - -	<u>13</u>	10:00 A.M.
" 7 - - -	13 - - -	11 - - -	24	
" 8 - - -	18 - - -	10 - - -	28	
" 9 - - -	15 - - -	22 - - -	37	
" 10 - - -	15 - - -	13 - - -	28	
" 11 - - -	11 - - -	.. - - -	<u>11</u>	2:25 P.M.
" 12 - - -	6 - - -	5 - - -	<u>11</u>	2:41 "
" 13 - - -	21 - - -	14 - - -	35	
" 14 - - -	27 - - -	22 - - -	49	
" 15 - - -	<u>47</u> - - -	35 - - -	82	5:15 "
" 16 - - -	<u>26</u> - - -	18 - - -	44	
" 17 - - -	28 - - -	21 - - -	49	
" 18 - - -	19 - - -	12 - - -	31	
" 19 - - -	13 - - -	8 - - -	21	
" 20 - - -	7 - - -	<u>45</u> - - -	52	10:07 "
" 21 - - -	5 - - -	.. - - -	<u>5</u>	11:09 "

KALAMAZOO.

ROSE & NORTH STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A.M.

Seating Capacity of Car - - - - -	30
Maximum Capacity of Car - - - - -	65
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	16

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	1 - - -	4 - - -	5 - - -	5:45 A.M.
" 2 - - -	30 - - -	28 - - -	58	
" 3 - - -	15 - - -	22 - - -	37	
" 4 - - -	12 - - -	12 - - -	24	
" 5 - - -	15 - - -	6 - - -	21	
" 6 - - -	9 - - -	11 - - -	20	
" 7 - - -	10 - - -	20 - - -	30	
" 8 - - -	13 - - -	21 - - -	34	
" 9 - - -	15 - - -	12 - - -	27	
" 10 - - -	21 - - -	15 - - -	36	
" 11 - - -	20 - - -	9 - - -	29	
" 12 - - -	.. - - -	2 - - -	2 - - -	2:40 P.M.
" 13 - - -	19 - - -	11 - - -	30	
" 14 - - -	14 - - -	14 - - -	28	
" 15 - - -	35 - - -	30 - - -	65	
" 16 - - -	49 - - -	1 - - -	50 - - -	5:35 "
" 17 - - -	.. - - -	14 - - -	14 - - -	6:20 "
" 18 - - -	19 - - -	18 - - -	37	
" 19 - - -	30 - - -	16 - - -	46	
" 20 - - -	6 - - -	3 - - -	9 - - -	8:38 "
" 21 - - -	16 - - -	8 - - -	24	
" 22 - - -	10 - - -	2 - - -	12 - - -	10:28 "
" 23 - - -	3 - - -	.. - - -	3 - - -	11:20 "

KALAMAZOO.

ROSE & NORTH STREET LINE.

Dec. 1st, 1910.

Run Commencing at 11:15 A.M.

Seating Capacity of Car - - - - -	30
Maximum Capacity of Car - - - - -	65
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	16

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS.
Trip No. 1 - - .. - - -	11 - - -	11 - - -	11 - - -	11:15 A.M.
" 2 - - -	8 - -	18 - - -	26	
" 3 - - -	9 - -	27 - - -	36	
" 4 - - -	19 - -	16 - - -	35	
" 5 - - -	8 - -	12 - - -	20	
" 6 - - -	11 - -	27 - - -	38	
" 7 - - -	27 - -	32 - - -	59 - - -	4:50 P.M.
" 8 - - -	31 - -	11 - - -	42 - - -	6:00 "
" 9 - - -	31 - -	26 - - -	57 - - -	6:55 "
" 10 - - -	18 - -	12 - - -	30	
" 11 - - -	7 - -	8 - - -	15 - - -	8:58 "
" 12 - - -	8 - -	3 - - -	11 - - -	9:45 "
" 13 - - -	25 - -	2 - - -	27	
" 14 - - -	.. - -	.. - - -	0 - - -	11:35 "

KALAMAZOO.

MAIN STREET LINE.

Cars in operation - - - - -	3
Headway - - - - -	15 minutes
Round Trip Time - - - - -	45 "

Car miles per round trip = 5.62

KALAMAZOO.

MAIN STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:20 A. M.

Seating Capacity of Car - - - - -	32
Maximum Capacity of Car - - - - -	70
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	14

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 1 - - -	10 - - -	<u>11</u> - - -	5:20 A.M.	
" 2 - - - 57 - - -	23 - - -	<u>80</u> - - -	6:22 "	
" 3 - - - 11 - - -	17 - - -	28		
" 4 - - - 19 - - -	14 - - -	33		
" 5 - - - 5 - - -	6 - - -	<u>11</u> - - -	8:22 "	
" 6 - - - 10 - - -	13 - - -	<u>23</u>		
" 7 - - - 15 - - -	20 - - -	35		
" 8 - - - 4 - - -	12 - - -	16		
" 9 - - - 18 - - -	<u>43</u> - - -	59 - - -	11:30 "	
" 10 - - - 10 - - -	<u>22</u> - - -	32		
" 11 - - - 18 - - -	6 - - -	24		
" 12 - - - 12 - - -	22 - - -	34		
" 13 - - - 6 - - -	12 - - -	18		
" 14 - - - 11 - - -	8 - - -	19		
" 15 - - - 14 - - -	19 - - -	33		
" 16 - - - 23 - - -	30 - - -	53		
" 17 - - - 43 - - -	20 - - -	63 - - -	5:05 P.M.	
" 18 - - - 33 - - -	14 - - -	47 - - -	5:50 "	
" 19 - - - 20 - - -	15 - - -	35		
" 20 - - - 32 - - -	5 - - -	37		
" 21 - - - 13 - - -	13 - - -	26		
" 22 - - - 14 - - -	17 - - -	31		
" 23 - - - 12 - - -	23 - - -	35		
" 24 - - - 3 - - -	20 - - -	23		
" 25 - - - 2 - - -	.. - - -	<u>2</u> - - -	11:07 "	

KALAMAZOO.

MAIN STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:30 A.M.

Seating Capacity of Car - - - - - 32

Maximum Capacity of Car - - - - - 70

Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 14

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	- - - 0	- - - 0	- - - 0	5:30 A.M.
" 2	- - - 17	- - - 14	- - - 31	
" 3	- - - 9	- - - 13	- - - 22	
" 4	- - - 15	- - - 22	- - - 37	
" 5	- - - 20	- - - 7	- - - 27	
" 6	- - - 15	- - - 10	- - - 25	
" 7	- - - 11	- - - 10	- - - 21	
" 8	- - - 14	- - - 20	- - - 34	
" 9	- - - 28	- - - 17	- - - 45	
" 10	- - - 11	- - - 21	- - - 32	
" 11	- - - 23	- - - 19	- - - 42	
" 12	- - - 21	- - - 15	- - - 36	
" 13	- - - 13	- - - 13	- - - 26	2:08 P.M.
" 14	- - - 2	- - - 24	- - - 26	
" 15	- - - 34	- - - 17	- - - 51	2:52 "
" 16	- - - 8	- - - 16	- - - 24	
" 17	- - - 25	- - - 60	- - - 85	4:22 "
" 18	- - - 13	- - - 44	- - - 57	5:07 "
" 19	- - - 34	- - - 16	- - - 50	5:52
" 20	- - - 13	- - - 11	- - - 24	
" 21	- - - 18	- - - 10	- - - 28	
" 22	- - - 3	- - - 7	- - - 10	8:02 "
" 23	- - - 6	- - - 23	- - - 29	
" 24	- - - 1	- - - 14	- - - 15	
" 25	- - - 8	- - - 7	- - - 15	
" 26	- - - 0	- - - 0	- - - 0	11:02 "

KALAMAZOO.

MAIN STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:35 A. M.

Seating Capacity of Car - - - - - 32
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 14

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	0	23	23	
" 2	19	15	34	
" 3	19	18	37	
" 4	21	14	35	
" 5	12	7	19	
" 6	9	13	22	
" 7	10	6	16	
" 8	16	11	27	
" 9	9	24	33	
" 10	13	14	27	
" 11	13	17	30	
" 12	22	12	34	
" 13	11	6	17	2:30 P.M.
" 14	14	13	27	
" 15	21	14	35	
" 16	32	30	62	
" 17	36	45	81	4:52 "
" 18	29	27	56	
" 19	5	10	15	
" 20	27	22	49	
" 21	21	11	32	
" 22	15	9	24	
" 23	11	7	18	
" 24	14	11	25	
" 25	6	5	11	10:55 "

KALAMAZOO.

LINCOLN & SEMINARY LINE.

Cars in operation - - - - -	1
Headway - - - - -	30 minutes
Round Trip Time - - - - -	30 "

Car miles per round trip = 3.06

KALAMAZOO.

LINCOLN & SEMINARY LINE.

Dec. 1st, 1910.

Run Commencing at 5:35 A.M.

Seating Capacity of Car - - - - - 32
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 8

		NUMBER OF PASSENGERS CARRIED			REMARKS
		OUTWARD	INWARD	TOTAL	
Trip No.	1	- - - 1	- - - 19	- - - 20	
"	2	- - - 4	- - - 40	- - - 44	
"	3	- - - 5	- - - 6	- - - 11	
"	4	- - - 2	- - - 2	- - - $\frac{4}{4}$	7:07 A.M.
"	5	- - - 1	- - - 3	- - - $\frac{4}{4}$	7:33 "
"	6	- - - 5	- - - 5	- - - 10	
"	7	- - - 1	- - - 4	- - - 5	8:15 "
"	8	- - - 2	- - - 7	- - - 9	
"	9	- - - 0	- - - 5	- - - 5	9:15 "
"	10	- - - 6	- - - 5	- - - 11	
"	11	- - - 2	- - - 2	- - - $\frac{4}{4}$	10:15 "
"	12	- - - 3	- - - 1	- - - $\frac{4}{4}$	10:45 "
"	13	- - - 2	- - - 2	- - - $\frac{4}{4}$	11:23 "
"	14	- - - 15	- - - 0	- - - 15	
"	15	- - - 2	- - - 1	- - - $\frac{3}{3}$	12:15 "
"	16	- - - 7	- - - 7	- - - 14	
"	17	- - - 0	- - - 5	- - - 5	1:15 P.M.
"	18	- - - 0	- - - 5	- - - 5	1:45 "
"	19	- - - 5	- - - 2	- - - 7	2:15 "
"	20	- - - .	- - - 1	- - - $\frac{1}{1}$	2:35 "
"	21	- - - 3	- - - 0	- - - $\frac{3}{3}$	2:45 "
"	22	- - - 7	- - - 4	- - - 11	
"	23	- - - 3	- - - 6	- - - 9	
"	24	- - - 10	- - - 7	- - - 17	
"	25	- - - 31	- - - 1	- - - 32	
"	26	- - - 35	- - - 4	- - - 39	5:15 "
"	27	+ + + 7	- - - 4	- - - 11	
"	28	- - - 7	- - - 1	- - - 8	
"	29	- - - 3	- - - 2	- - - 5	6:45 "
"	30	- - - 9	- - - 7	- - - 16	
"	31	- - - 0	- - - 0	- - - 0	7:45 "
"	32	- - - 1	- - - 3	- - - $\frac{4}{4}$	8:15 "
"	33	- - - 2	- - - 1	- - - $\frac{3}{3}$	8:45 "
"	34	- - - 13	- - - 5	- - - 18	
"	35	- - - 0	- - - 2	- - - 2	9:45 "
"	36	- - - 5	- - - 0	- - - 5	10:15 "
"	37	- - - 8	- - - 5	- - - 13	
"	38	- - - 0	- - - 0	- - - 0	11:15 "

KALAMAZOO.

PATTERSON STREET LINE.

Cars in operation - - - - -	1
Headway - - - - -	15 minutes
Round Trip Time - - - - -	15 "
Car miles per round trip - - - - -	2.24

KALAMAZOO.

PATTERSON STREET LINE.

Dec. 1st, 1910.

Run Commencing at 5:30 A. M.

Seating Capacity of Car - - - - - 32
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 6

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	3 - - -	8 - - -	11	
" 2 - - -	2 - - -	11 - - -	13	
" 3 - - -	15 - - -	9 - - -	24	
" 4 - - -	7 - - -	10 - - -	17	
" 5 - - -	13 - - -	6 - - -	19	
" 6 - - -	3 - - -	3 - - -	6	
" 7 - - -	2 - - -	2 - - -	4	7:15 A.M.
" 8 - - -	6 - - -	3 - - -	9	
" 9 - - -	3 - - -	7 - - -	10	
" 10 - - -	5 - - -	4 - - -	9	
" 11 - - -	5 - - -	9 - - -	14	
" 12 - - -	2 - - -	.. - - -	2	8:30 A.M.
" 13 - - -	6 - - -	4 - - -	10	
" 14 - - -	3 - - -	1 - - -	4	8:53 "
" 15 - - -	4 - - -	4 - - -	8	
" 16 - - -	6 - - -	2 - - -	7	
" 17 - - -	8 - - -	3 - - -	11	
" 18 - - -	4 - - -	0 - - -	4	9:53 "
" 19 - - -	2 - - -	1 - - -	3	10:08 "
" 20 - - -	3 - - -	7 - - -	10	
" 21 - - -	5 - - -	5 - - -	10	
" 22 - - -	2 - - -	2 - - -	4	10:53 "
" 23 - - -	0 - - -	8 - - -	8	
" 24 - - -	6 - - -	.. - - -	6	11:38 "

(Continued)

KALAMAZOO.

Dec. 1st, 1910.

PATTERSON STREET LINE.

Run Commencing at 5:30 A.M.--(Continued)

NUMBER OF PASSENGERS CARRIED.

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 25	- - - 5	- - - 7	- - - 12	
" 26	- - - 3	- - - 5	- - - 8	
" 27	- - - 2	- - - 4	- - - 6	
" 28	- - - 0	- - - 5	- - - 5	- - - 12:45 P.M.
" 29	- - - 9	- - - 5	- - - 14	
" 30	- - - 5	- - - 6	- - - 11	
" 31	- - - 9	- - - 10	- - - 19	
" 32	- - - 2	- - - 9	- - - 11	
" 33	- - - 3	- - - 4	- - - 7	
" 34	- - - 8	- - - 4	- - - 12	
" 35	- - - 8	- - - 6	- - - 14	
" 36	- - - 3	- - - 3	- - - 6	
" 37	- - - 8	- - - 5	- - - 13	
" 38	- - - 5	- - - 6	- - - 11	
" 39	- - - 4	- - - 2	- - - 6	
" 40	- - - 11	- - - 3	- - - 14	
" 41	- - - 19	- - - 9	- - - 28	
" 42	- - - 16	- - - 15	- - - 31	
" 43	- - - 11	- - - 12	- - - 23	
" 44	- - - 17	- - - 6	- - - 23	
" 45	- - - 25	- - - 5	- - - 30	
" 46	- - - 24	- - - 4	- - - 28	
" 47	- - - 10	- - - 2	- - - 12	
" 48	- - - 9	- - - 10	- - - 19	
" 49	- - - 10	- - - 0	- - - 10	
" 50	- - - 6	- - - 14	- - - 20	
" 51	- - - 4	- - - 2	- - - 6	
" 52	- - - 3	- - - 2	- - - 5	- - - 7:45 "
" 53	- - - 8	- - - 1	- - - 9	
" 54	- - - 5	- - - 8	- - - 13	
" 55	- - - 2	- - - .	- - - 2	- - - 8:45 "
" 56	- - - 2	- - - 1	- - - 3	- - - 9:00 "
" 57	- - - 2	- - - 1	- - - 3	- - - 9:15 "
" 58	- - - 6	- - - 3	- - - 9	
" 59	- - - 4	- - - 2	- - - 6	
" 60	- - - 6	- - - 3	- - - 9	
" 61	- - - 6	- - - 0	- - - 6	
" 62	- - - 4	- - - 3	- - - 7	
" 63	- - - 19	- - - 0	- - - 19	

LANSING.

INDEX.

COMMENTS:

Lansing - - - - - 120

TABLES: Unprofitability - - - - - 121-A

Impunctuality - - - - - 122

Over-crowding - - - - - 126

Washington Ave. Line - - - 127

Michigan Ave - - -" - - - 133

Depot Line - - - - - 139

Washtenaw & Cedar Street - - 141

LANSING.

Lansing, the Capitol City of Michigan, is, like Jackson, largely dominated by the automobile industry, and a period of depression in the latter (such as is being encountered) is at once reflected in the street car earnings.

Of the four M. U. R. cities, Lansing takes high rank in many details of operation. In support of this assertion it may be pointed out that:-

1. The operating ratio (48.2%))	
2. The percentage of unprofitability (13%))	Are the lowest.
3. The car miles operated per \$1.00 earned (4.25))	
4. The revenue passengers carried per car mile (4.86))	
5. The average fare per revenue passenger (4.83¢))	Are the highest.
6. The operating earnings per car mile (23.5¢))	
7. The percentage of overcrowding)	

As in the other cities, however, much remains

LANSING.

to be done. The revenue rides per capita are very low at 126, when compared, for instance, with 384 in Denver, Colorado.

The percentage of impunctuality is high and no doubt this affords the first field for improvement.

In the study of Lansing the writer has excluded the Depot Line from all computations affecting irregularity of service for the reason that the running of these cars conforms to the movements of the steam trains, rather than to a definite schedule based upon headway or average speed.

In the same way the Waverly Park Line has been eliminated from all consideration of punctuality, profitability or earning power since, during the winter months, it is a negligible quantity, 4 trips per day only, being maintained.

The Pine Lake Service, too, since it partakes more of the nature of an interurban, has been excluded.

LANSING.

Dec. 1st, 1910.

LINE.	NO. OF REVENUE PAS- SENGERS NECESSARY PER ROUND TRIP IN ORDER TO MEET RUN- NING EXPENSES.	% OF TIME CARS WERE OPERATED AT A LOSS ON DEC. 1ST, 1910.
Washington Ave. - - - -	13 - - - - -	-11%
College Ave. - - - - -	27 - - - - -	-10%
Washtenaw & Cedar - - -	14 - - - - -	-18%
Depot - - - - -	7 - - - - -	-15%

LANSING.

Table Indicating Distribution of Impunctuality of Service.

PERCENT OF TIME CARS WERE IMPUNCTUAL.

LINE	DEC.1st	DEC.2nd	DEC.7th	ALL DAYS.
Washington Ave.- -	30% - - -	23% - - -	48% - - -	34%
College Ave.- - -	10% - - -	45% - - -	51% - - -	36%
Washtenaw & Cedar-	21% - - -	21% - - -	35% - - -	25%
<hr/>				
All cars - All lines	22% - -	29% - - -	46% - - -	<u>33%</u>
<hr/> <hr/>				

LANSING.

Table Showing Details of Irregularity on DEC. 1ST, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Washington Ave. - -	21 - - -	14 - - -	4 - - -	3
College - - - - -	1, - - -	7 - - -	.. - - -	..
Washtenaw & Cedar - -	3 - - -	5 - - -	2 - - -	..
All lines - - - - -	25 - - -	26 - - -	6 - - -	3

LANSING.

Table Showing Details of Irregularity on DEC. 2ND, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Washington Ave. - -	11 - - -	12 - - -	6 - - -	3
College - - - - -	4 - - -	7 - - -	11 - - -	14
Washtenaw & Cedar -	0 - - -	4 - - -	3 - - -	3
<hr/>				
All lines - - - - -	15 - - -	23 - - -	20 - - -	20
<hr/> <hr/>				

LANSING.

Table Showing Details of Irregularity on DEC. 7TH, 1910.

NUMBER OF TIMES CAR WAS EITHER AHEAD OF OR BEHIND TIME
IN MAKING A ROUND TRIP TO THE EXTENT OF

LINE	FROM 1 to 2 MINUTES	FROM 3 to 5 MINUTES	FROM 6 to 10 MINUTES	MORE THAN 10 MINUTES
Washington Ave. - -	22 - - -	31 - - -	7 - - -	4
College - - - - -	4 - - -	18 - -	-15 - - -	2
Washtenaw & Cedar -	7 - - -	6 - - -	3 - - -	2
All lines - - - - -	33 - - -	55 - -	-25 - - -	8

LANSING.

TABLE INDICATING DEGREE OF OVER-CROWDING
ON THE VARIOUS LINES.

LINE	NUMBER OF TIMES SEATING CAPACITY OF CAR WAS EX- CEEDED ON A SEMI- ROUND TRIP.	% OF TOTAL.
Washington Ave. - - - - -	8 - - - - -	3%
College Ave. - - - - -	33 - - - - -	20%
Depot - - - - -	1 - - - - -	4%
Washtenaw & Cedar - - - - -	2 - - - - -	2%
Waverly Park - - - - -	0 - - - - -	0%
<hr/>		
All lines - - - - -	44 - - - - -	<u>7.6%</u>
<hr/>		

LANSING.

WASHINGTON AVENUE LINE.

Cars in operation - - - - -	5
Headway - - - - -	8 minutes
Round Trip Time - - - - -	40 "
Car miles per round trip - - - - -	5.61 miles

LANSING.

WASHINGTON AVENUE LINE

Dec. 1st, 1910.

Run Commencing at 5:30 A.M.

Seating Capacity of Car - - - - - 32

Maximum Capacity of Car - - - - - 70

Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - 13

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
TripNo. 1 - - -	21 - - -	18 - - -	30	
" 2 - - -	13 - - -	12 - - -	25	
" 3 - - -	12 - - -	12 - - -	24	
" 4 - - -	31 - - -	19 - - -	50	
" 5 - - -	11 - - -	9 - - -	20	
" 6 - - -	11 - - -	15 - - -	26	
" 7 - - -	11 - - -	8 - - -	19	
" 8 - - -	16 - - -	16 - - -	32	
" 9 - - -	14 - - -	12 - - -	26	
" 10 - - -	18 - - -	17 - - -	35	
" 11 - - -	22 - - -	19 - - -	41	
" 12 - - -	30 - - -	18 - - -	48	
" 13 - - -	29 - - -	9 - - -	38	
" 14 - - -	25 - - -	6 - - -	31	
" 15 - - -	8 - - -	8 - - -	16	
" 16 - - -	28 - - -	23 - - -	51	
" 17 - - -	25 - - -	19 - - -	44	
" 18 - - -	19 - - -	26 - - -	45	
" 19 - - -	30 - - -	19 - - -	49	
" 20 - - -	30 - - -	18 - - -	48	
" 21 - - -	19 - - -	27 - - -	46	
" 22 - - -	17 - - -	8 - - -	25	
" 23 - - -	10 - - -	6 - - -	16	
" 24 - - -	6 - - -	19 - - -	25	
" 25 - - -	19 - - -	.. - - -	19	
" 26 - - -	9 - - -	4 - - -	13	
" 27 - - -	1 - - -	2 - - -	<u>3</u> - - -	10:14 P.M.
" 28 - - -	7 - - -	5 - - -	<u>12</u> - - -	10:54 "

LANSING.

WASHINGTON AVENUE LINE.

Dec. 1st, 1910.

Run Commencing at 5:40 A. M.

Seating Capacity of Car	- - - - -	32
Maximum Capacity of Car	- - - - -	70
Number of revenue passengers necessary per)	
round trip in order to meet running expenses)	- - -	13

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	- - - 50	- - - 3	- - - 53	- - - 5:40 A.M.
" 2	- - - 8	- - - 10	- - - 18	
" 3	- - - 30	- - - 12	- - - 42	
" 4	- - - 29	- - - 19	- - - 48	
" 5	- - - 14	- - - 11	- - - 25	
" 6	- - - 8	- - - 3	- - - 11	- - - 9:20 "
" 7	- - - 9	- - - 11	- - - 20	
" 8	- - - 14	- - - 31	- - - 45	
" 9	- - - 21	- - - 43	- - - 64	- - - 11:20 "
" 10	- - - 16	- - - ..	- - - 16	
" 11	- - - 12	- - - 42	- - - 54	
" 12	- - - 20	- - - 28	- - - 48	
" 13	- - - 18	- - - 28	- - - 46	
" 14	- - - 30	- - - 15	- - - 45	
" 15	- - - 6	- - - 16	- - - 22	
" 16	- - - 14	- - - 9	- - - 23	
" 17	- - - 26	- - - 41	- - - 67	
" 18	- - - 28	- - - 23	- - - 51	
" 19	- - - 9	- - - 51	- - - 60	
" 20	- - - 16	- - - 3	- - - 19	
" 21	- - - 15	- - - 32	- - - 47	
" 22	- - - 19	- - - 16	- - - 35	
" 23	- - - 9	- - - 7	- - - 16	
" 24	- - - 7	- - - 8	- - - 15	
" 25	- - - 8	- - - ..	- - - 8	- - - 9:18 P.M.
" 26	- - - 22	- - - 9	- - - 31	
" 27	- - - 10	- - - 4	- - - 14	
" 28	- - - 7	- - - 5	- - - 12	- - - 10:58 "
" 29	- - - 1	- - - ..	- - - 1	- - - 11:38 "

LANSING.

WASHINGTON AVENUE LINE

Dec. 1st, 1910.

Run Commencing at 5:50 A. M.

Seating Capacity of Car - - - - - 32
 Maximum Capacity of Car - - - - - 70
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 13

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	34	21	55	5:50 A.M.
" 2	31	12	43	
" 3	9	9	18	
" 4	21	9	30	
" 5	3	11	14	
" 6	9	10	19	
" 7	12	12	24	
" 8	11	11	22	
" 9	13	16	29	
" 10	9	..	9	11:50 "
" 11	12	19	31	
" 12	12	18	30	
" 13	18	16	34	
" 14	19	18	37	
" 15	8	13	21	
" 16	18	21	39	
" 17	31	26	57	
" 18	25	41	66	4:32 P.M.
" 19	6	72	78	5:10 "
" 20	23	17	40	
" 21	14	19	33	
" 22	25	9	34	
" 23	10	11	21	
" 24	15	10	25	
" 25	6	..	6	9:12 "
" 26	4	9	13	
" 27	7	10	17	
" 28	5	10	15	
" 29	1	..	1	11:30 "

LANSING.

WASHINGTON AVENUE LINE.

Dec. 1st, 1910.

Run Commencing at 6:00 A. M.

Seating Capacity of Car - - - - - 32
 Maximum Capacity of Car, - - - - - 70
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 13

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	58	8	66	6:00 A.M.
" 2	21	10	31	
" 3	27	17	44	
" 4	13	17	30	
" 5	17	5	22	
" 6	7	12	19	
" 7	21	8	29	
" 8	7	22	29	
" 9	5	13	18	
" 10	20	5	25	
" 11	29	5	34	
" 12	18	13	31	
" 13	33	11	44	2:06 P.M.
" 14	17	1	17	
" 15	16	13	29	
" 16	16	14	30	
" 17	24	24	48	
" 18	28	27	55	
" 19	25	29	54	
" 20	9	11	20	
" 21	25	22	47	
" 22	20	8	28	
" 23	10	15	25	
" 24	15	17	32	
" 25	5	3	8	9:26 "
" 26	5	32	37	
" 27	7	4	11	10:46 "

LANSING.

WASHINGTON AVENUE LINE.

Dec. 1st, 1910.

Run Commencing at 6:42 A. M.

Seating Capacity of Car - - - - - 32
 Maximum Capacity of Car - - - - - 70
 Number pf revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 13

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	5	2	7	6:42 A.M.
" 2	18	16	34	
" 3	28	12	40	
" 4	14	10	24	
" 5	8	7	15	
" 6	15	12	27	
" 7	22	9	31	
" 8	10	12	22	
" 9	8	17	25	
" 10	14	17	31	
" 11	11	..	11	1:02 P.M.
" 12	19	20	39	
" 13	31	37	68	2:02 "
" 14	10	..	10	2:42 "
" 15	15	10	25	
" 16	19	20	39	
" 17	28	29	57	
" 18	41	26	67	
" 19	18	21	39	
" 20	17	11	28	
" 21	13	14	27	
" 22	5	25	30	
" 23	3	11	14	
" 24	14	4	18	
" 25	8	10	18	
" 26	5	13	18	
" 27	10	7	17	
" 28	6	..	6	11:22 "

LANSING.

MICHIGAN AVE. LINE.

Cars in operation - - - - -	5
Headway - - - - -	15 minutes
Round Trip Time - - - - -	75 "
Car miles per round trip - - - - -	11.54

LANSING.

MICHIGAN AVE. LINE.

Dec. 1st, 1910.

Run Commencing at 5:30 A.M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 27

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	7 - - -	14 - - -	<u>21</u> - - -	5:30 A.M.
" 2 - - -	39 - - -	25 - - -	<u>64</u>	
" 3 - - -	33 - - -	19 - - -	<u>52</u>	
" 4 - - -	22 - - -	25 - - -	<u>47</u>	
" 5 - - -	24 - - -	38 - - -	<u>62</u>	
" 6 - - -	36 - - -	<u>50</u> - - -	<u>86</u>	
" 7 - - -	39 - - -	<u>58</u> - - -	<u>97</u>	
" 8 - - -	12 - - -	<u>12</u> - - -	<u>24</u> - - -	2:15 P.M.
" 9 - - -	14 - - -	<u>46</u> - - -	<u>60</u> - - -	2:30 "
" 10 - - -	<u>54</u> - - -	<u>67</u> - - -	<u>121</u> - - -	3:30 "
" 11 - - -	<u>66</u> - - -	<u>83</u> - - -	<u>149</u> - - -	4:45 "
" 12 - - -	<u>51</u> - - -	<u>35</u> - - -	<u>86</u> - - -	6:00 "
" 13 - - -	<u>38</u> - - -	31 - - -	<u>69</u>	
" 14 - - -	17 - - -	22 - - -	<u>39</u>	
" 15 - - -	<u>44</u> - - -	30 - - -	<u>74</u> - - -	9:45 "
" 16 - - -	<u>16</u> - - -	0 - - -	<u>16</u> - - -	11:00 "

LANSING.

MICHIGAN AVE. LINE.

Dec. 1st, 1910.

Run Commencing at 5:30 A. M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 27

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - - 1 - - -	45 - - -	46 - - -	5:30 A.M.	
" 2 - - - 23 - - -	22 - - -	45		
" 3 - - - 32 - - -	25 - - -	57		
" 4 - - - 20 - - -	14 - - -	34		
" 5 - - - 26 - - -	19 - - -	45		
" 6 - - - 38 - - -	37 - - -	75		
" 7 - - - 36 - - -	32 - - -	68		
" 8 - - - 32 - - -	29 - - -	61		
" 9 - - - 11 - - -	37 - - -	48		
" 10 - - - 41 - - -	69 - - -	110 - - -	3:52 "	
" 11 - - - 49 - - -	39 - - -	88 - - -	5:07 "	
" 12 - - - 25 - - -	33 - - -	58		
" 13 - - - 29 - - -	8 - - -	37		
" 14 - - - 19 - - -	19 - - -	38		
" 15 - - - 22 - - -	29 - - -	51		
" 16 - - - 3 - - -	.. - - -	3 - - -	11:22 "	

LANSING.

MICHIGAN AVE. LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A.M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 27

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	37	21	58	
" 2	<u>45</u>	<u>43</u>	88	7:00 A.M.
" 3	<u>56</u>	<u>30</u>	86	
" 4	21	24	45	
" 5	19	28	47	
" 6	42	35	77	
" 7	<u>27</u>	<u>62</u>	89	
" 8	9	..	9	2:30 P.M.
" 9	19	22	41	
" 10	35	77	112	3:45 "
" 11	<u>59</u>	<u>47</u>	106	5:00 "
" 12	<u>33</u>	<u>50</u>	83	6:20 "
" 13	23	31	54	
" 14	22	20	42	
" 15	14	20	34	
" 16	18	3	<u>21</u>	11:15 "

LANSING.

MICHIGAN AVE. LINE.

Dec. 1st, 1910.

Run Commencing at 5:45 A.M.

Seating Capacity of Car - - - - -	39
Maximum Capacity of Car - - - - -	110
Number of revenue passengers necessary per round trip in order to meet running expenses)	27

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	7 - - -	37 - - -	44	
" 2 - - -	26 - - -	<u>82</u> - - -	108 - - -	6:37 A.M.
" 3 - - -	35 - - -	<u>16</u> - - -	51	
" 4 - - -	33 - - -	16 - - -	49	
" 5 - - -	20 - - -	52 - - -	72	
" 6 - - -	<u>47</u> - - -	33 - - -	80 - - -	11:37 "
" 7 - - -	<u>40</u> - - -	30 - - -	70 - - -	12:52 "
" 8 - - -	<u>33</u> - - -	.. - - -	33	
" 9 - - -	18 - - -	34 - - -	52	
" 10 - - -	<u>47</u> - - -	<u>56</u> - - -	103 - - -	3:22 P.M.
" 11 - - -	<u>101</u> - - -	<u>45</u> - - -	146 - - -	4:37 "
" 12 - - -	<u>38</u> - - -	<u>29</u> - - -	67	
" 13 - - -	28 - - -	17 - - -	45	
" 14 - - -	25 - - -	20 - - -	45	
" 15 - - -	5 - - -	<u>41</u> - - -	46 - - -	9:37 "
" 16 - - -	8 - - -	.. - - -	<u>8</u> - - -	10:52 "

LANSING.

MICHIGAN AVE. LINE.

Dec. 1st, 1910.

Run Commencing at 5:50 A.M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per }
 round trip in order to meet running expenses) - - 27

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	11 - - -	26 - - -	37	
" 2 - - -	25 - - -	54 - - -	79	
" 3 - - -	25 - - -	17 - - -	42	
" 4 - - -	20 - - -	21 - - -	41	
" 5 - - -	28 - - -	31 - - -	59	
" 6 - - -	27 - - -	16 - - -	43	
" 7 - - -	40 - - -	27 - - -	67 - - -	1:07 P.M.
" 8 - - -	22 - - -	.. - - -	22 - - -	2:22 "
" 9 - - -	9 - - -	32 - - -	41	
" 10 - - -	31 - - -	52 - - -	83	
" 11 - - -	78 - - -	82 - - -	160 - - -	4:52 "
" 12 - - -	44 - - -	30 - - -	74 - - -	6:20 "
" 13 - - -	36 - - -	12 - - -	48	
" 14 - - -	27 - - -	15 - - -	42	
" 15 - - -	18 - - -	32 - - -	50	
" 16 - - -	10 - - -	.. - - -	10 - - -	11:07 "

LANSING.

DEPOT LINE.

Cars in operation - - - - - 1

Headway	}	
and		
Round Trip Time)		

To suit Steam Line.

Car miles per round trip - - - 3

LANSING.

DEPOT LINE.

Dec. 1st, 1910.

Run Commencing at 7:10 A. M.

Seating Capacity of Car - - - - - 32

Maximum Capacity of Car - - - - - 70

Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 7

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	8 - - -	8 - - -	16	
" 2 - - -	14 - - -	22 - - -	36	
" 3 - - -	1 - - -	31 - - -	32	
" 4 - - -	1 - - -	0 - - -	1 - - -	9:35 A.M.
" 5 - - -	1 - - -	30 - - -	31	
" 6 - - -	0 - - -	0 - - -	0 - - -	11:30 "
" 7 - - -	15 - - -	30 - - -	45	
" 8 - - -	0 - - -	29 - - -	29	
" 9 - - -	5 - - -	54 - - -	59 - - -	2:50 P.M.
" 10 - - -	16 - - -	12 - - -	28	
" 11 - - -	4 - - -	32 - - -	36	
" 12 - - -	8 - - -	26 - - -	34	
" 13 - - -	0 - - -	8 - - -	8	

LANSING.

WASHTENAW & CEDAR STREET LINE.

ORDINARY SERVICE.

Cars in operation - - - - -	2
Headway - - - - -	20 minutes
Round Trip Time - - - - -	40 "
Car miles per round trip - - - - -	5.87

OTHER SERVICE.

(Four trips to Waverly Park)

Cars in operation - - - - -	1
-----------------------------	---

Leaving at {	{ 7:10 A. M.
	{ 11:25 " "
	{ 2:55 P. M.
	{ 5:20 " "

Car miles per round trip - - - - -	8.19 miles.
------------------------------------	-------------

LANSING.

WASHTENAW & CEDAR STREET LINE

Dec. 1st, 1910.

Run Commencing at 5:20 A. M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per)
 round trip in order to meet running expenses) - - - 14

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1 - - -	4 - - -	17 - - -	21	
" 2 - - -	22 - - -	7 - - -	29	
" 3 - - -	9 - - -	7 - - -	16	
" 4 - - -	26 - - -	12 - - -	38	
" 5 - - -	9 - - -	6 - - -	15	
" 6 - - -	13 - - -	16 - - -	29	
" 7 - - -	12 - - -	10 - - -	22	
" 8 - - -	15 - - -	6 - - -	21	
" 9 - - -	7 - - -	8 - - -	15	
" 10 - - -	14 - - -	8 - - -	22	
" 11 - - -	15 - - -	14 - - -	29	
" 12 - - -	14 - - -	20 - - -	34	
" 13 - - -	14 - - -	27 - - -	41	
" 14 - - -	22 - - -	7 - - -	29	
" 15 - - -	6 - - -	.. - - -	6 - - -	2:43 P.M.
" 16 - - -	21 - - -	6 - - -	27	
" 17 - - -	15 - - -	12 - - -	27	
" 18 - - -	51 - - -	21 - - -	72 - - -	4:43 "
" 19 - - -	35 - - -	15 - - -	50	
" 20 - - -	18 - - -	6 - - -	24	
" 21 - - -	13 - - -	11 - - -	24	
" 22 - - -	11 - - -	12 - - -	23	
" 23 - - -	16 - - -	4 - - -	20	
" 24 - - -	7 - - -	3 - - -	10 - - -	8:40 "
" 25 - - -	13 - - -	2 - - -	15	
" 26 - - -	8 - - -	4 - - -	12 - - -	10:00 "
" 27 - - -	12 - - -	2 - - -	14	

LANSING.

WASHTENAW & CEDAR STREET LINE.

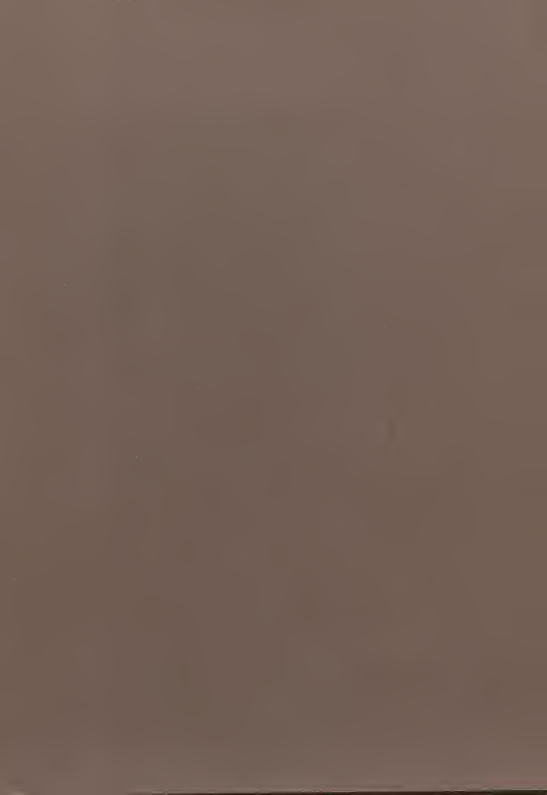
Dec. 1st, 1910.

Run Commencing at 5:40 A. M.

Seating Capacity of Car - - - - - 39
 Maximum Capacity of Car - - - - - 110
 Number of revenue passengers necessary per }
 round trip in order to meet running expenses) - - - 14

NUMBER OF PASSENGERS CARRIED

	OUTWARD	INWARD	TOTAL	REMARKS
Trip No. 1	21	31	52	
" 2	7	12	19	
" 3	10	..	10	7:00 A. M.
" 4	12	3	15	
" 5	12	9	21	
" 6	10	10	20	
" 7	3	6	9	9:20 "
" 8	10	11	21	
" 9	11	15	26	
" 10	8	28	36	
" 11	10	10	20	
" 12	31	12	43	
" 13	24	7	31	
" 14	44	..	44	2:00 P.M.
" 15	12	19	31	
" 16	12	10	22	
" 17	22	14	36	
" 18	24	21	45	
" 19	25	7	32	
" 20	12	..	12	5:40 "
" 21	5	18	23	
" 22	12	3	15	
" 23	4	2	6	8:20 "
" 24	10	12	22	
" 25	2	3	5	9:40 "
" 26	19	8	27	
" 27	10	1	11	11:00 "
" 28	..	..	0	11:40 "



Handwritten text on a piece of aged, yellowed paper. The text is extremely faint and illegible, appearing to be a list or series of entries. Some faint characters and numbers are visible, such as "1812", "1813", "1814", "1815", "1816", "1817", "1818", "1819", "1820", "1821", "1822", "1823", "1824", "1825", "1826", "1827", "1828", "1829", "1830", "1831", "1832", "1833", "1834", "1835", "1836", "1837", "1838", "1839", "1840", "1841", "1842", "1843", "1844", "1845", "1846", "1847", "1848", "1849", "1850", "1851", "1852", "1853", "1854", "1855", "1856", "1857", "1858", "1859", "1860", "1861", "1862", "1863", "1864", "1865", "1866", "1867", "1868", "1869", "1870", "1871", "1872", "1873", "1874", "1875", "1876", "1877", "1878", "1879", "1880", "1881", "1882", "1883", "1884", "1885", "1886", "1887", "1888", "1889", "1890", "1891", "1892", "1893", "1894", "1895", "1896", "1897", "1898", "1899", "1900".

Michigan United Railways
Operating Data
1910

Operating Data.

	Jackson	Pottle Creek	Kalamazoo	Lansing
Population	31,433	25,227	37,437	31,929
city earnings year ending Dec. 31st, 1910.	\$164,452	\$154,483	\$212,321	\$192,328
Revenue passenger " " " " "	1,917,000	1,442,780	1,776,132	1,634,045
Car miles " " " " "	940,322	827,710	1,137,536	800,620
Earnings per capita	\$ 5.25	\$ 6.12	\$ 5.52	\$ 6.18
Car miles per capita	30	32.3	29.8	25.2
" " " dollar earned	5.74	5.38	6.27	6.73
Revenue passengers per car mile	4.12	4.18	4.14	3.26
Revenue rides per capita	124	137	121	128
Average fare per passenger	4.39¢	4.47¢	4.59¢	3.83¢
Operating earnings per car mile	17.3¢	18.75¢	17.00¢	23.5¢
" expenses " " "	17.63¢	14.70¢	17.77¢	17.89¢
Ratio	64.3%	58.7%	67.6%	86.7%
Percentage of impunctuality	55 "	26	36	33
" " overcrowding of cars	7	5	7	1.64
" " unprofitability	28%	34%	33%	13%

Table #5.
Michigan United Railways
Operating Data,
Winter Schedule.

Operating Data.

Line	Route	Days of operation	Ordinary headway	Mile	Round trip	Length of round trip	Average speed miles per hour	Rating capacity of cars	Max. capacity of cars
Jackson	East Main & First	1 and 6	11 and 12 Mts.	48 and 60 Mts.		4.60 miles	8.36	39	110
"	Jackson & Francis	5	12 "	60 "		6.54 to 6.04 "	6.54 to 6.04	39	110
"	West Main & Cooper	1	15 "	45 "		6.23 "	8.32	24 and 32	60 and 70
"	Lansing & Page		15 "	45 "		6.60 "	8.02	12	70
Little Creek	Marshall & Washington	1	10 "	40		From 3.48 " to 6.32 "	8.3 to 9.5	18	70
"	Maple & Lake	4	15 "	60		7.44 "	7.1 "	39	110
"	Main St.	2 and 4	15 and 12 "	45 and 40 "		4 to 6.24 "	7.02 to 10.9	30	70
"	Garfield & Upton	3	15	45		5.08 to 7.14 "	9.5	28	70
Kalamazoo	Asylum & Portage	5	15 "	75 "		11.60 "	9.5	32	70
	Washington & West	5	10 "	50 "		7.00 "	9.4	39	110
	Rose & North	1 and 3	12 and 10 "	40 and 30 "		6.30 "	9.5	30	65
	Main St.	3	15 "	45 "		5.62 "	7.5	32	70
	Sedgwick	1	30 "	30 "		3.04 "	6.12	32	70
	Patterson	1	15 "	15 "		2.24 "	9.0	32	70
Lansing	Washington Av.	5	8 "	40 "		5.61 "	8.45	32	70
	College or Michigan Av.	5	15 "	75 "		11.54 "	9.88	39	110
	Washington & Cedar	2	20 "	40 "		5.67 "	8.82	39	110
	Waverly Park	-	-	-		6.19 "	-	32	70
	Depot	1	-	-		3.00 "	-	32	70

*Also certain trippers in addition.

